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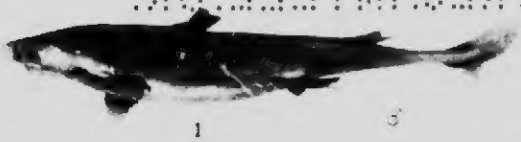

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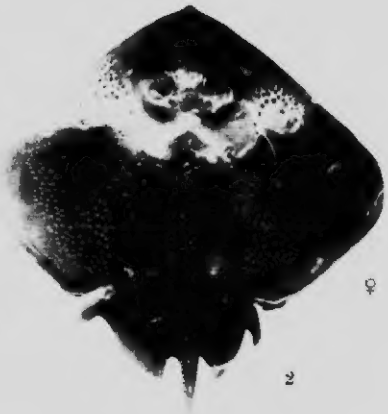

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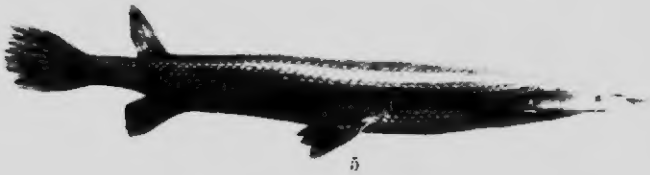

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CHECK LIST

OF

The Fishes of the Dominion of Canada

AND

Newfoundland

By ANDREW HALKETT
Naturalist, Department Marine and Fisheries

Illustrated by 14 Plates

OTTAWA
PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1913.

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INTRODUCTORY REMARKS

This publication is a check-list of the Fishes of British North America. Its aim is to give the species indigenous to the Dominion of Canada and Newfoundland, as well as those of the Fishing Banks beyond the three mile limit. A complete list of the fishes of Canada has long been a desideratum, and it is hoped that the present work will help to obviate that need. It should, however, be looked upon as a pioneer, heralding the way towards a fuller specific conception of our fishes and their distribution. There are records of specimens which are provisionally admitted in the list as distinct species, having been recorded so, which in reality may belong to species already known, and an endeavour is made to point out those doubtful records, which happily are not over numerous, in foot-notes. As regards the better known, and more commercially important kinds, the check-list may, in giving their range, more repletely serve its purpose; but even in a few of these the limits of their range, especially in the far north, and owing to confusion in their records and synonyms, are hard to determine. Records of certain specimens are possibly sometimes wrongly named by the recorders, and would therefore appear, had they been rightly named, under the species to which they really belong; although in some such cases the localities in which they were found may be included through other records. Species which occur close to our borders, or both north and south of our borders, although not actually recorded from our waters are also provisionally admitted; and this appears justifiable, because the late Rev. G. W. Taylor was constantly bringing to light species occurring in British Columbia which hitherto had not been recorded; and furthermore, researches have revealed species along our Atlantic sea-coast, and in the fresh waters of the Dominion, which formerly were not recorded north of the United States boundary. There are also some interesting records of casual visitors, such as the tarpon (*Tarpon atlanticus*) in Nova Scotia; and the occurrence of species very rare in Canada, such as the paddle-fish (*Polyodon spathula*) in Helen Lake, Nipigon River, and elsewhere in the Canadian Great Lakes region. The list of the fishes, especially the fresh water fishes, of Newfoundland is admitted to be inadequate. There appear to be no published records of the species of that colony (save a list of 'The Fishes of Labrador,' by William Converse Kendall), yet as one third of the island of Newfoundland is covered with water some interesting finds may in the future be looked for. Some remarkable and diverse forms, indigenous to the Banks of Newfoundland and to the Banks of Nova Scotia have been obtained on these fishing grounds, or have followed vessels into the harbours and ports from there, and it has been thought fitting to include such in the list.

Canada has its own particular species of fishes that is species which do not occur, or have not been found, in the waters of any other country; and one of them, of which there is only one specimen known, recently discovered, is the type of a new genus (*Asemichthys*). The names of the species peculiar to Canada, with the localities where they occur, appear in their places in the body of the text. Contrariwise there is scarcely a sea on the surface of the globe in which there does not occur some fish which also occurs, or has occurred, on the coasts of Canada.

The check-list, of course, is not descriptive; but is simply, it is hoped, what it purports to be. It is a pioneer, feeling its way towards a better knowledge of what species of fishes inhabit the waters of the British North American possessions -especially those indigenous to Canada. It does not profess to be a complete list, but it is confidently believed to approximate the total number of fishes which our waters contain. It is subject to amendment then, in regard to species to be added to the list as records or discoveries reveal them; and not only so, but in regard to species, and such are apparently few, to be eliminated from the list as having no right there.

As the list stands there are 569 species including sub-species (3 being in addenda), and they follow each other consecutively, and in systematic order, from the cyclostomes to the plectognaths: the families and orders under which they are placed appearing in a preceding scheme of classification. The technical name, governed by the rules of priority; the vernacular name, when the fish has one (and the majority of our fishes bear vernacular names); the environment, concisely; and the geographical distribution of each fish are given.

The check-list is based on all the available literature on the subject, and on my own personal observations in many parts of the Dominion; as well as in an examination of specimens in the museum. In its preparation a vast amount of material has been consulted. I am under inestimable obligation to Drs. Jordan and Evermann. Their great work on 'The Fishes of North and Middle America' in four massive volumns has been indispensable, and I am indebted to them for the settlement of priority of names. I adhere, however, to British ichthyologists where a matter of orthography is concerned—as *Lepidosteus* instead of *Lepisosteus* and *Hyodon* instead of *Hiodon*. Besides the great work of those authorities referred to, I have received much help from their 'American Food and Game Fishes,' and from Dr. Jordan's 'Guide to the Study of Fishes' in two volumns.

Many lists and records of the fishes of Provinces and localities have been diligently compared, and in respect to such valuable aid has been afforded me by individual students of the fishes of special localities.

To Mr. Harry Piers, Curator of the Provincial Museum of Nova Scotia, I am indebted not only for copies of his annual reports which contain accounts of fishes of Nova Scotia, and for records of the occurrence of *Chilomycterus schœpfi* and *Mola mola* in that Province, but also for the loan of the following lists which are now out of print.

'Fishes of Nova Scotia,' 1866, by Thomas F. Knight.

'List of the Fishes of Nova Scotia,' 1879, by J. Matthew Jones.

'Nova Scotian Ichthyology,' 1885-6, by Dr. Honeyman.

To Dr. Phillip Cox, of Fredericton University, I owe a great deal, not only for the valuable aid which his 'Catalogue of the Marine and Fresh-water Fishes of New Brunswick' and his 'List of Fresh-water Fishes of the Gaspé Peninsula' have afforded me, but I am additionally indebted to him for kindly going over my manuscript in regard to the fishes of New Brunswick.

Gratefully do I acknowledge the favours of the late Rev. G. W. Taylor, formerly the Curator of the Biological Station at Departure Bay, Vancouver Island. In personal interviews and in correspondence he did me great service, and he had the kindness to review a provisional manuscript list of the fishes of British Columbia which I drew up for his perusal. It may be mentioned too that Mr. Taylor kindly volunteered to allow me to incorporate into my list, a list of the fishes of British Columbia, which he himself had in course of preparation, but unfortunately his death intervened and the list has never appeared. In regard to the fishes of British Columbia, I am also indebted to Mr. Francis Kermode, Curator of the Provincial Museum, Victoria, who kindly had a list of the fishes in the museum type-written for me, and who also sent me a copy of his published report which contains a list of the fishes in that collection. To him I am further indebted for getting a very young specimen of *Catulus brunneus*, through Dr. Gilbert of Leland-Stanford Junior University, identified.

The following lists and publications have been of great service:

'Food and Game Fishes of North America,' by the deceased Dr. G. Brown Goode.

'Check-list of the Fishes of Ontario,' by Mr. C. W. Nash, Lecturer on Biology for the Ontario Department of Agriculture.

'Notes on the Fishes of Canso,' and 'Notes on Fishes of Tignish, Prince Edward Island,' by Mr. G. A. Cornish, of Toronto University.

'The Fishes of Labrador,' by Mr. W. C. Kendall, of the United States Fish Commission.

'A Check-list of the Fresh-water Fishes of Canada,' by Evermann and Goldsborough.

'Fauna of the Atlantic Coast of Canada,' by Dr. Joseph Stafford, in which mention is made of fishes occurring at Gaspé.

Notes on the Fishes of Lake Ontario, of Lake Champlain, and of the St. Lawrence River, by Evermann and Kendall.

Catalogue of Fishes, &c., exhibited by the Department of Marine and Fisheries at the Colonial and Indian Exhibition, by the deceased Dr. J. F. Whiteaves.

Prof. Ramsay Wright's 'Preliminary Report on the Fish and Fisheries of Ontario' was of service; and 'List of Manitoba Fishes' by Dr. E. E. Prince, was of use as showing species which occur in Manitoba, but no localities are given.

The following British publications have been of great service, generally as showing the distribution of fishes, which occur in Canada, at the coasts of other lands, or in the open ocean.

'History of British Fishes,' 1859, in two volumns, by William Yarrell.

'An Introduction to the Study of Fishes,' 1880, by Dr. Albert Günther.

'The Cambridge Natural History': volumn VII—'Fishes'—in part by Dr. T. W. Bridge, of Trinity College, Cambridge, and in part by Dr. G. A. Boulenger, of the Zoological Department of the British Museum.

'Catalogue of the Perciform Fishes in the British Museum' by Dr. Boulenger.

'The Fishes of Porto Rico,' by Evermann and Marsh, published in a Bulletin of the United States, was of similar service concerning the occurrence of certain species at that island

To Dr. L. Hussakof of the American Museum of Natural History I am indebted for a diagnosis of different species of *Myxine*, with whom I corresponded on the subject. The diagnosis is from 'A Revision of the Myxinoids of the Genus *Myxine*,' by Mr. C. Tate Regan, of the British Museum.

I have also to mention aid received through Mr. Alex. Finlayson, Inspector of Hatcheries for the Dominion, whose acquaintance with many of our fishes, especially of our commercial fishes, is very thorough, in the determination of one or two specimens which were not readily recognizable owing to the effects of the preservatives in which they had been kept; and last, but by no means least, it affords me great pleasure to express my appreciation of the hearty interest shown to me by Mr. W. A. Found, Superintendent of Fisheries, during the time when the check-list was being prepared, and for his patience in awaiting its forthcoming.

A few words concerning the scheme of classification referred to above. In the present state of ichthyological knowledge a certain latitude may be allowable, and I may therefore be pardoned for venturing to arrange families and higher groups provisionally in such a way as for the present best appears to suit myself. The Cyclostomata naturally divide into two orders, the names here used for these being—Myxinoides (Hagfishes) and Petromyzontes (Lampreys). Being unready, as some do, to regard the Plagiostomi (Sharks and Rays) and the Holocephali (Chimæras) as distinctive sub-classes, I combine them in a single sub-class—Elasmobranchii, of which the two former are orders. I follow Hasse in sub-dividing the Plagiostomi according to the structure of the vertebræ. These divisions I regard as sub-orders. The names Selachii and Batoidei (save that the former by some is the name employed for the entire sub-class, which is then properly equivalent to Elasmobranchii) I discard, for the reason that the transition from the more primitive sharks through the tectospondylous sharks to the saw-fishes and more specialized rays, seems to be so marked as to preclude their sub-division in a way which cannot but be other than artificial; especially as the more natural sub-order Tectospondyli includes forms which it is usual to place with the Selachii on the one hand (although none

such are represented in our waters) and with the Batoidei on the other. Discarding the name Ganoidei as untenable, I innovate the classification of the Teleostomi by dividing them primarily into two super-orders—Chondrostei and Teleostei. There is a closer relationship between the Holostei (Gar-pikes and *Amia calva*) in many essential particulars and the Teleostei, as recognized, than there is between the former and the Chondrostei. Therefore I include the Holostei as an order in the Teleostei. The two names to be sure signify much the same thing, but Holostei may stand as the name of the most primitive order of the super-order. Conformity to system requires an order in the super-order Chondrostei, although the super-order and order embrace the same. This I give as Acipenseroidei (the paddle-fish and the sturgeons). The super-order Teleostei, thus understood, contains XV orders (only two of which, Symbranchii and Opisthomi, are not represented in Canada) and I follow Boulenger in their names and arrangement, except that with him these orders (saving Holostei—here included in Teleostei) are sub-orders, and the super-order Teleostei—an order; and his *divisions* of the Acanthopterygii I regard as sub-orders. Quotations from Boulenger given as foot-notes in the scheme of classification are intended as explanatory as to why I adopt his classification. In sub-dividing orders into families and genera, I have in substance been guided by Jordan and Evermann, and in the names of the species I essentially follow them; for their assiduity in having determined the priority of the names of the fishes of the continent of North and Middle America is obvious and manifest, and speaks for itself. Certain names employed by Jordan and Evermann, not always with them equal in rank, I have moreover adopted as sub-orders of some orders.

The check-list is followed by a brief glossary of technical terms, and indices of technical and vernacular names; and the work is illustrated with 14 plates, from photographs of mounted specimens and casts in the Canadian Fisheries Museum.

ANDREW HALKETT,
Naturalist, Department Marine and Fisheries.

Canadian Fisheries Museum,
OTTAWA, Canada, 1913.

SCHEME OF CLASSIFICATION

CLASS PISCES (FISHES)

Sub-class I Cyclostomata (Hagfishes and Lampreys). Also known as Cyclostomi, and as Marsipobranchii.

ORDER I MYXINOIDES (Hagfishes). Also known as Hyperotreti.

Family I Myxinidæ.

Genus 1 Myxine

limosa 1 (American Hagfish)

Family II Eptatretidæ

Genus 2 Polistotrema

stouti 2 (California Hagfish)

ORDER II PETROMYZONTES. (Lampreys). Also known as Hyperoartii

Family III Petromyzonidæ

Genus 3 Petromyzon

marinus 3 (Great Sea Lamprey)

unicolor 4 (Landlocked Lamprey)

Genus 4 Ichthyomyzon

concolor 5 (Silver Lamprey)

castaneus 6 (Northern Lamprey)

Genus 5 Entosphenus

tridentatus 7 (Three-toothed Lamprey)

Genus 6 Lampetra

aurea 8 (Brook Lamprey)

cibaria 9 (Brook Lamprey)

wilderi 10 (Small Black Lamprey: Brook Lamprey)

Sub-class II Elasmobranchii (Sharks, Rays, and Chimæras). Also known as Selachii and as Chondropterygii.

ORDER III PLAGIOSTOMI (Sharks and Rays)

SUB-ORDER 1 DIPLOSPONDYLI. (Plagiostomes in which the centra are imperfectly segmented, and joined in pairs, and each pair bearing two neural arches.)

Family IV Hexanchidæ.[1] Known also as Notidanidæ.

Genus 7 Notorhynchus

maculatus 11 (Cow Shark)

Genus 8 Hexanchus

corinus 12 (Shovel-nosed Shark)

SUB-ORDER 2 ASTEROSPONDYLI. (Plagiostomes in which the calcification of each centrum in cross section radiates star-like from the central axis.)

Family V Scylliorhinidæ. Scylliidæ in part of some.

Genus 8a Scylliorhinus

profundorum 12a (Roussette). See addenda p. 117

Genus 9 Catulus

brunneus 13 (Cat Shark: Swell Shark)

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[1]Although this family contains sharks which have 7 gill apertures on either side, *Hexanchus* has priority over *Notidanus*, and the name of the family should conform to that of the typical genus.

Family VI Galeidæ. Carcharlidæ in part of some.
Genus 10 Galeorhinus
zyopterus 14 (Oil Shark: Tope)
Genus 11 Prionace
glauca 15 (Great Blue Shark)
Family VII Alopiidæ. Included in Lamnidæ by some.
Genus 12 Alopias
vulpes 16 (Thresher)
Family VIII Lamnidæ
Genus 13 Lamna
cornubica 17 (Porbeagle: Mackerel Shark)
Genus 14 Carcharodon
carcharias 18 (Great White Shark)
Family IX Cetorhinidæ
Genus 15 Cetorhinus
maximus 19 (Basking Shark)

SUB-ORDER 3 CYCLOSPONDYLI. (Plagiostomes in which the calcification of each centrum in cross section forms a ring around the axis.)
Family X Squalidæ. Spinacidæ in part of some.
Genus 16 Squalus
acanthias 20 (Picked Dogfish)
sucklii 21 (California Dogfish)
Genus 17 Centroscymnus
cerlolepis 22 (Spiny Dogfish)
Genus 18 Centroscyllium
fabricii 23 (Spiny Dogfish)
Family XI Dalatiidæ. Spinacidæ in part of some.
Genus 19 Somniosus
microcephalus 24 (Sleeper Shark: Greenland Shark)

SUB-ORDER 4 TECTOSPONDYLI. (Plagiostomes in which the calcification of each centrum in cross section forms a series of concentric rings around the axis.)
Family XII Pristidæ
Genus 20 Pristis
pectinatus 25 (Common Sawfish)
Family XIII Rajidæ. Raiidæ according to some (—a question of orthography).
Genus 21 Raja
erinacea 26 (Common Skate)
ocellata 27 (Big Skate)
fyllæ 28
radiata 29 (Starry Ray)
senta 30
lævis 31 (Barn-door Skate)
granulata 32
rhina 33
binoculata 34 (Big-Skate-of-California)
stellulata 35
abyssicola 36 (Deep Sea Ray)

Family XIV Dasyatidæ. Also known at Trygonidæ.
Genus 22 Dasyatis
centrura 37 (Common Sting Ray)
ORDER IV HOLOCEPHALI (Chimæras).
Family XV Chimæridæ.
Genus 23 Chimæra
affinis 38 (Chimæra)
Genus 24 Hydrolagus
colliei 39 (Ratfish)
Sub-class III Teleostomi (Sturgeons and their allies and true-boned fishes).
(Series A[1] —Physostomous Teleostomes, or such in which the air-bladder, as a rule, communicates with the œsophagus, or digestive tract, by a pneumatic duct).
SUPER ORDER I CHONDROSTEI (Sturgeons and their allies).
ORDER V ACIPENSEROIDEI (Equivalent to the super-order)
Family XVI Polyodontidæ.
Genus 25 Polyodon
spathula 40 (Paddle-fish)
Family XVII Acipenseridæ.
Genus 26 Acipenser
transmontanus 41 (White Sturgeon)
medirostris 42 (Green Sturgeon)
sturio oxyrhynchus 43 (Common Sturgeon)
rubicundus 44 (Lake Sturgeon)
brevirostrum 45 (Short-nosed Sturgeon)
SUPER-ORDER II TELEOSTEI (True-boned Fishes)
ORDER VI HOLOSTEI (Extant representatives, Gar-pikes and the Bowfin).
Family XVIII Lepidosteidæ.
Genus 27 Lepidosteus
osseus 46 (Common Garpike)
platostomus 47 (Short-nosed Garpike)
Family XIX Amiidæ.
Genus 28 Amia
calva 48 (Bowfin: Dogfish)
ORDER VII MALACOPTERYGII[2] (Clupeoids, Salmonoids, and Viper Fishes and their allies). Equivalent (at least in so far as extant forms are concerned) to the order Isospondyli and to part of the Iniomi as regarded by Jordan and Evermann, and to the Scyphophori (a group of African fishes) placed by these authorities in Ostariophysi.
SUB-ORDER 1 CLUPEOIDEA (Clupeoids)
Family XX Elopidæ.
Genus 29 Tarpon
atlanticus 49 (Tarpon)

[1] In series A are included the super-order Chondrostei, and the orders Holostei, Malacopterygii, Ostariophysi, Apodes, and Haplomi, of the super-order Teleostei; whilst series B (page 21) embraces the remaining orders of Teleostei.

[2] "Unquestionably the most generalized sub- ... ving most in common with the Holostean ganoids." Boulenger.

Family XXI Albulidæ
Genus 30 Albula
vulpes 50 (Lady-fish).
Family XXII Hyodontidæ.
Genus 31 Hyodon
alosoides 51 (Shad Mooneye)
chrysopsis 52 (Western Goldeye)
tergisus 53 (Mooneye: Toothed Herring)
Family XXIII Dorosomidæ. Included in Clupeidæ by some.
Genus 32 Dorosoma
cepedianum 54 (Gizzard Shad: Hickory Shad)
ly XXIV Clupeidæ
ienus 33 Clupea
harengus 55 (Common Herring)
pallasii 56 (Califor ia Herring)
Genus 34 Clupanodon
caeruleus 57 (California Sardine)
Genus 35 Pomolobus
chrysochloris 58 (Blue Herring: Skipjack)
mediocris 59 (Hickory Shad: Fall Herring)
pseudoharengus 60 (Gaspereau: Alewife)
æstivalis 61 (Glut Herring)
Genus 36 Alosa
sapidissima 62 (American Shad)
Genus 37 Brevoortia
tyrannus 63 (Menhaden: Mossbunker)
Family XXV Engraulididæ.[1] Included as a sub-family—Engraulinæ—by some in Clupeidæ.
Genus 38 Engraulis
mordax 64 (California Anchovy)
Family XXVI Alepocephalidæ.
Genus 39 Mitchillina
bairdii 65
SUB-ORDER 2 SALMONOIDEA (Salmonoids)
Family XXVII Salmonidæ.
Genus 40 Coregonus
coulteri 66 (Coulter's Whitefish)
williamsoni 67 (Rocky Mountain Whitefish)
kennicotti 68 (Broad Whitefish)
richardsonii 69 (Richardson's Whitefish)
quadrilateralis 70 (Round Whitefish: Shad-Waiter)
clupeiformis 71 (Common Whitefish)
nelsonii 72 (Humpback Whitefish)
labradoricus 73 (Labrador Whitefish: Sault Whitefish)

[1] "This group is often regarded as a sub-family under the *Clupeidæ*, from which it differs in no character of high importance." Jordan and Evermann

Genus 41 Argyrosomus
osmeriformis 74 (Smelt-of-the-New-York-Lakes)
artedi 75 (Cisco; Lake Herring)
hoyi 76 (Mooneye Cisco)
pusillus 77 (Least Whitefish)
lucidus 78 (Great-Bear-Lake-Herring)
laurettæ 79 (Lauretta Cisco)
prognathus 80 (Bloater; Long-jaw)
nigripinnis 81 (Black-fin; Blue-fin)
tullibee 82 (Tullibee)

Genus 42 Stenodus
mackenzii 83 (Inconnu)

Genus 43 Oncorhynchus
gorbuscha 84 (Humpback Salmon)
keta 85 (Dog Salmon)
tschawytscha 86 (Spring Salmon; Quinnat; King Salmon)
kisutch 87 (Coho; Silver Salmon)
nerka 88 (Sockeye Salmon; Blue-back Salmon)
kennerlyi 89 (Kennerly's Salmon; Little Redfish)

Genus 44 Salmo
salar 90 (Atlantic Salmon)
sebago 91 (Landlocked Salmon)
ouananiche 92 (Ouananiche)
clarkii 93 (Cutthroat Trout)
rivularis 94 (Steelhead)
kamloops 95 (Kamloops Trout)
irideus 96 (Rainbow Trout)
trutta levenensis 97 (Loch Leven Trout)

Genus 45 Cristivomer
namaycush 98 (Salmon Trout; Great Lake Trout)
siscowet 99 (Siscowet)

Genus 46 Salvelinus
fontinalis 100 (Speckled Trout; Brook Trout
parkei 101 (Dolly Varden Trout)
alpinus alipes 102 (Long-finned Charr)
stagnalis 103 (Greenland Charr)
arctarus 104 (Arctic Charr)
oquassa naresi 105 (Nares Charr)
marstoni 106 (Marston Trout; Red Canadian Trout)

Family XXVIII Thymallidæ. Included in Salmonidæ by some.

Genus 47 Thymallus
signifer 107 (Arctic Grayling)
tricolor 108 (Michigan Grayling)
montanus 109 (Montana Grayling)

Family XXIX Argentinidæ. Included in Salmonidæ by some.

Genus 48 Mallotus
villosus 110 (Capelin)

Genus 49 Thaleichthys
pacificus 111 (Oolachan: Candle-fish)
Genus 50 Osmerus
thaleichthys 112 (Pacific Smelt)
mordax 113 (American Smelt)
dentex 114 (Rainbow Herring)
Genus 51 Mesopus
pretiosus 115 (Surf Smelt)
Genus 52 Argentina
silus 116 (Argentine: Siel Smelt)

Family XXX Microstomidæ. Included in Salmonidæ by some.
Genus 53 Bathylagus
pacificus 117 (Deep Sea Smelt)

SUB-ORDER 3 STOMIATOIDEA[1] (Viper Fishes and their allies)

Family XXXI Chauliodontidæ. Included as a sub-family—Chauliodontinæ—in the more comprehensive family Stomiatidæ of Boulenger. Placed in the order Iniomi by Jordan and Evermann.
Genus 54 Chauliodus
macouni 118 (Viperfish)
sloanei 119 (Viperfish)

Family XXXII Sternoptychidæ. Included as a sub-family—Sternoptychinæ—in the more comprehensive family Stomiatidæ of Boulenger. Placed in the order Iniomi by Jordan and Evermann.
Genus 55 Sternoptyx
diaphana 120
Genus 56 Argyropelecus
olfersi 121

Family XXXIII Stomiatidæ. Embraces as a sub-family Stomiatinæ—a part only of the more comprehensive family Stomiatidæ of Boulenger. Placed in the order Iniomi by Jordan and Evermann.
Genus 57 Stomias
ferox 122

Family XXXIV Malacosteidæ. Included in the sub-family—Stomiatinæ—in the more comprehensive family Stomiatidæ of Boulenger. Placed in the order Iniomi by Jordan and Evermann.
Genus 58 Malacosteus
niger 123

ORDER VIII OSTARIOPHYSI[2] (Canadian representatives Siluroids and Cyprinoids) The Scyphophori (fishes of Africa) are included in Ostariophysi by Jordan and Evermann—see under Malacopterygii, page 13.

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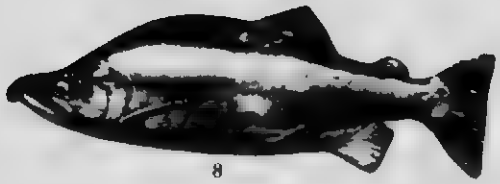
[1]For the sake of system I know not how better to distinguish from the clupeoids and salmonoids the families in which the Viper-fishes and their allies are embraced than by placing them in a sub-order which I denote Stomiatoidea. Whether or not in general the forms which this sub-order would embrace have the mesocoracoid-arch present, or atrophied, or absent, I do not know.

[2]"One of the most natural groups of the class Pisces, as demonstrated by M. Sagemehl in 1885." Boulenger.

PLATE II.

S. 13. Oncorhynchus gorbuscha (Humpback Salmon
(Showing seasonal characteristics)



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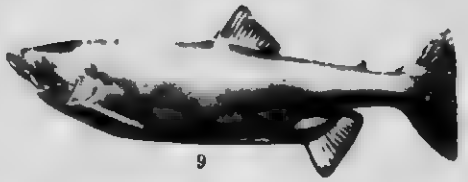

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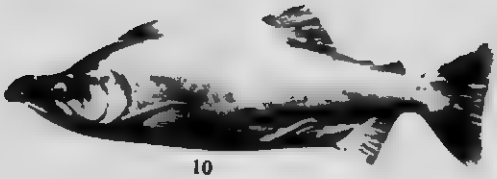

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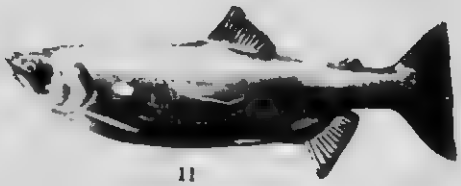

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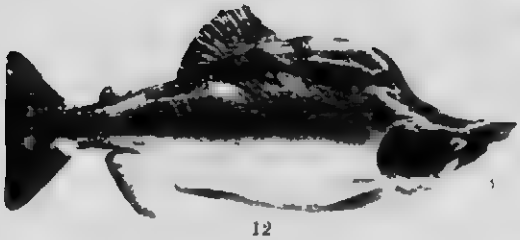

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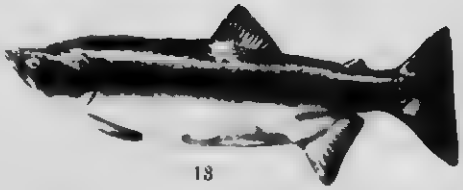

13

Sub-order 1 Nematognathi (Siluroids—Cat-fishes and their allies)

Family XXXV Siluroidæ

Genus 59 Ictalurus
- punctatus 124 (Channel Catfish)

Genus 60 Ameiurus
- lacustris 125 (Lake Catfish)
- natalis 126 (Yellow Catfish)
- vulgaris 127 (Long-jawed Catfish)
- nebulosus 128 (Common Catfish: Horned Pout)
- melas 129 (Black Bullhead)

Genus 61 Noturus
- flavus 130 (Stone Catfish)

Genus 62 Schilbeodes
- gyrinus 131 (Tadpole Stone Cat: Mad Tom)

Sub-order 2 Eventognathi[1] (Cyprinoids—Suckers, Minnows, and Carps)

Family XXXVI Catostomidæ. Included as a sub-family (Catostominæ) in Cyprinidæ by Boulenger, as proposed by Sagemehl.

Genus 63 Ictiobus
- cyprinella 132 (Common Buffalo Fish)
- bubalus 133 (Small-mouth Buffalo Fish)

Genus 64 Carpiodes
- thompsoni 134 (Lake Carp Sucker)
- velifer 135 (Quillback)

Genus 65 Pantosteus
- jordani 136 (Mountain Sucker)

Genus 66 Catostomus
- griseus 137 (Gray Sucker)
- catostomus 138 (Northern Sucker)
- macrocheilus 139 (Columbia River Sucker)
- commersonii 140 (Common White Sucker)
- nigricans 141 (Stone Roller: Black Sucker)

Genus 67 Erimyzon
- sucetta oblongus 142 (Chub Sucker)

Genus 68 Minytrema
- melanops 143 (Spotted Sucker)

Genus 69 Moxostoma
- anisurum 144 (White-nosed Red Horse)
- aureolum 145 (Common Red Horse)
- macrolepidotum 146 (Large-scaled Red Horse)
- lesueuri 147 (Northern Red Horse)
- breviceps 148 (Short-headed Mullet)

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[1] I employ the name Eventognathi for the Cyprinoids as a sub-order instead of Pleurospondyli. The literal meaning of the latter is *worn together vertebræ*, and the co-ossification of the anterior vertebræ is a character as true of the siluroids as of the cyprinoids. Nematognathi and Pleurospondyli are by some regarded as orders, and the latter is divisible into 3 sub-orders, viz. Eventognathi, Heterognathi, and Gymnonoti, the first mentioned alone of which is represented in our waters. I therefore employ the names Nematognathi and Eventognathi as sub-orders of the order Ostariophysi.

Genus 70 Placopharynx
duquesnii 149
Family XXXVII Cyprinida
Genus 71 Campostoma
anomalum 150 (Stone Roller; Stone Lugger)
Genus 72 Acrocheilus
alutaceus 151 (Chisel-mouth)
Genus 73 Chrosomus
erythrogaster 152 (Red-bellied Dace)
Genus 74 Hybognathus
nuchalis 153 (Silver Minnow)
argyritis 154 (White Minnow)
Genus 75 Pimephales
promelas 155 (Black-head Minnow; Bull Minnow)
notatus 156 (Blunt-nosed Minnow)
Genus 76 Mylocheilus
caurinus 157 (Columbia River Chub)
Genus 77 Semotilus
corporalis 158 (Silver Chub; Fall-fish)
atromaculatus 159 (Creek Chub; Horned Dace)
Genus 78 Ptychocheilus
oregonensis 160 (Squaw-fish)
Genus 79 Leuciscus
balteatus 161 (Columbia River Minnow)
elongatus 162 (Red-sided Shiner)
nachtriebi 163 (Nachtrieb Dace)
neogaeus 164
Genus 80 Opsopoeodus
emiliae 165
Genus 81 Abramis
crysoleucas 166 (Bream; Roach; Golden Shiner)
Genus 82 Cliola
vigilax 167 (Bull-head Minnow)
Genus 83 Notropis
jordani 168 (Jordan's Shiner)
cayuga 169 (Cayuga Shiner)
fretensis 170
muskoka 171 (Muskoka Shiner)
heterodon 172 (Black-chin Minnow)
blennius 173 (Straw-coloured Minnow)
volucellus 174
scylla 175
hudsonius 176 (Spawn-eater; Spot-tail Minnow)
selene 177 (Spawn-eater)
whipplii 178 (Silverfin; Satin-fin Minnow)
cornutus 179 (Dace; Redfin)
jejunus 180 (Poor Minnow)
scopifer 181

atherinoides 182 (Great Minnow)
rubrifrons 183 (Rosy-front Minnow)
umbratilis 184 (Redfin Minnow)

Genus 84 Rhinichthys
cataractæ 185 (Long-nosed Dace)
dulcis 186 (Long-nosed Dace)
atronasus 187 (Black-nosed Dace)

Genus 85 Agosia
nubila 188 (Dusky Minnow)
umatilla 189 (Idaho Minnow)
falcata 190 (Falcate Minnow)

Genus 86 Hybopsis
dissimilis 191 (Spotted Shiner)
amblops 192 (Silver Chub)
storerianus 193 (Lake Minnow)

Genus 87 Couesius
plumbeus 194 (Lake Chub)
dissimilis 195
greeni 196 (Green's Chub)

Genus 88 Platygobio
gracilis 197 (Flat-headed Chub)

Genus 89 Exoglossum
maxillingua 198 (Cut-lip Minnow)

Genus 90 Cyprinus
carpio 199 (German Carp)

Genus 91 Carassius
auratus 200 (Goldfish)

ORDER IX APODES[9] (Eels)

Family XXXVIII Anguillidæ. Included in Murænidæ by Günther.

Genus 92 Anguilla
chrysypa 201 (American Eel)

Family XXXIX Simenchelyidæ. Included in Anguillidæ by Boulenger.

Genus 93 Simenchelys
parasiticus 202 (Snub-nosed Eel)

Family XL Leptocephalidæ. Included in Murænidæ by Günther, and in Anguillidæ by Boulenger.

Genus 94 Leptocephalus
conger 203 (Conger Eel)

Family XLI Nemichthyidæ. Included in Murænidæ by Günther.

Genus 95 Avocettina
infans 204 (Snipe Eel)

Genus 96 Nemichthys
scolopaceus 205 (Snipe Eel)
avocetta 206 (Snipe Eel)

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[9] "A large group of aberrant, degraded fishes, heralded by the Cretaceous genus *Urenchelys*, the most generalized of eels." Boulenger.

Family XLII Synaphobranchidæ.[1] Included in Murænidæ by Günther.

Genus 97 Synaphobranchus

pinnatus 207 (Deep Sea Eel)

Family XLIII Eurypharyngidæ. Included in Murænidæ (*Saccopharynx*) by Günther, and in Saccopharyngidæ by Boulenger. Placed in the order Lyomeri (Gulpers) of Gill and Ryder, by Jordan and Evermann.

Genus 98 Gastrostomus

bardii 208 (Gulper)

ORDER X HAPLOMI.[2] (Such physostomous Teleostomes, excepting Symbranchii and Apodes, as are devoid of a mesocoracoid arch)

Family XLIV Lucidæ. Esocidæ of Günther, and with Umbridæ, equivalent to Esocidæ of Boulenger.

Genus 99 Lucius

reticulatus 209 (Green Pike; Common Eastern Pickerel)

lucius 210 (Common Pike)

masquinongy 211 (Maskinonge)

Family XLV Umbridæ. Equivalent with Luciidæ to Esocidæ of Boulenger.

Genus 100 Umbra

limi 212 (Mud Minnow)

Family XLVI Pœciliidæ. Included in Cyprinodontidæ by some.

Genus 101 Fundulus

heteroclitus 213 (Common Killifish)

macrolepidotus 214 (Common Cobbler)

badius 215 (Garman's Cobbler)

diaphanus 216 (Fresh-water Killy; Grayback)

notatus 217 (Top Minnow)

Family XLVII Myctophidæ. Included in Scopelidæ by some. Placed in the order Iniomi by Jordan and Evermann.

Genus 102 Macrostoma

quercinum 218

margaritiferum 219

castaneum 220

Genus 103 Ceratoscopelus

madeirensis 221 (Lantern Fish)

Genus 104 Lampanyctus

guntheri 222

gemmifer 223

Genus 105 Nannobrachium

nannochir 224

Genus 106 Diaphus

theta 225 (Head-light Fish)

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[1] "Deep-sea Fishes, resembling the true Eels in the general form and in the presence of linear scales placed at right angles, but differing in the absence of the pterygo-palatine arch, as in the Saccopharyngidæ." Boulenger.

[2] "The absence of the mesocoracoid bone distinguishes these fishes from the Malacopterygii, and the presence of a duct to the air bladder separates them from the Percesoces, to some of which, the Scombresocidæ and the Atherinidæ, they are linked by the Cyprinodontidæ; whilst the Scopelidæ are connected with the Berycidæ by the Stephanoberycidæ." Boulenger.

Genus 107 Rhinoscopelus
coccoi 226

Genus 108 Myctophum
punctatum 227 (Lantern Fish)

Genus 109 Benthosema
arcticum 228

Genus 110 Tarletonbeania
crenularis 229

Family XLVIII Paralepididæ. Included in Scopelidæ by some. Placed in the order Iniomi by Jordan and Evermann.

Genus 111 Arctozenus
borealis 230

Family XLIX Plagyodontidæ. Known also as Alepidosauridæ. Placed in the order Iniomi by Jordan and Evermann.

Genus 112 Plagyodus
ferox 231 (Lancet Fish)
æsculapius 232 (Wolf-fish; Hand-saw Fish)
borealis 233 (Hand-saw Fish)

Family L Percopsidæ. As a family equivalent to the sub-order Salmoperæ of Acanthopterygii (Acanthopteri) of Jordan and Evermann, and as such, of course, by them, raised in rank.

Genus 113 Percopsis
guttatus 234 (Sand Roller; Trout Perch)

Genus 114 Columbia
transmontana 235 (Oregon Trout Perch)

(Series B[1] Physoclistous Teleostomes, or such in which the air bladder, as a rule, does not communicate with the œsophagus, or digestive tract, by a pneumatic duct, except in the embryos.)

ORDER XI HETEROMI[2] (Spiny Eels)

Family LI Notacanthidæ

Genus 115 Notacanthus
phasganorus 236 (Spiny Eel)

Genus 116 Macdonaldia
rostrata 237 (Spiny Eel)

ORDER XII SELENICHTHYES.[3] (Represented solely by the Opah *Lampris luna*). Instituted as a sub-order by Boulenger to contain *Lampris luna*.

[1]See note to series A, page 13.

[2]"Closely related to the Haplomi, but separated chiefly on account of the closed air-bladder." Boulenger

[3]"A very aberrant type of uncertain affinities. Its only representative is the opah, *Lampris luna* a large pelagic fish of wide distribution." Boulenger

In the VIIth volume of the Cambridge Natural History (1910) Boulenger places *Lampris luna* in his division Selenichthyes of the sub-order Catosteomi, but later in the XIth edition of the Encyclopædia Britannica (1911) he separates Selenichthyes as a distinctive sub-order, and places the rest of Catosteomi in the sub-order Thoracostei, a group proposed by Swinnerton to contain Hemibranchii and Lophobranchii

Family LII Lamprididæ. Placed as a family by Jordan and Evermann in their group Scombroidei, among the Acanthopterygii (Acanthopteri) and by Günther in Coryphænidæ, in his division Acanthopterygii Cotto-Scombriformes.

Genus 117 Lampris

luna 238 (Opah: King-fish)

ORDER XIII THORACOSTEI (Sticklebacks, Trumpet-fishes, Pipe-fishes, and Sea-horses).

SUB-ORDER 1 HEMIBRANCHII (Sticklebacks and Trumpet-fishes). Regarded as a distinct order by Jordan and Evermann. Subsequently with Jordan a sub-order of Phthinobranchii.

Family LIII Gasterosteidæ

Genus 118 Eucalia

inconstans 239 (Brook Stickleback)

pygmæa 240 (Dwarf Stickleback)

Genus 119 Pygosteus

pungitius 241 (Nine-Spined Stickleback)

brachypoda 242 (Arctic Stickleback)

Genus 120 Gasterosteus

aculeatus 243 (Common Stickleback)

atkinsii 244 (Eastern Stickleback)

cuvieri 245 (Partly Armoured Stickleback)

cataphractus 246 (Alaska Stickleback)

williamsoni microcephalus 247 (California Stickleback)

Genus 121 Apeltes

quadracus 248 (Four-spined Stickleback)

Family LIV Aulorhynchidæ

Genus 122 Aulorhynchus

flavidus 249 (Yellow Stickleback)

Family LV Fistularidæ

Genus 123 Fistularia

tabacaria 250 (Trumpet Fish)

petimba 251 (Trumpet Fish)

SUB-ORDER 2 LOPHOBRANCHII (Pipe-fishes and Sea-horses.) Regarded as a distinct order by Jordan and Evermann. Subsequently with Jordan a sub-order of Phthinobranchii.

Family LVI Syngnathidæ

Genus 124 Siphostoma

griseolineatum 252 (Pipe Fish)

fuscum 253 (Common Pipe Fish)

Genus 125 Hippocampus

hudsonius 254 (Common American Sea-horse)

ORDER XIV PERCESOCES. (Here embracing diversified forms, which more or less agree in characters pointed out by Boulenger).[1] A portion of this order—a sub-order of Acanthopterygii (Acanthopteri) of Jordan and Evermann.

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[1] "Air-bladder, if present, without duct. Parietal bones separated by the supraoccipital. Pectoral arch suspended from the skull, no mesocoracoid bone. Ventral fins, if present, abdominal, or at least with the pelvic bones not solidly attached to the clavicular arch." "Although this sub-order is perhaps only an artificial association, it must be borne in mind that, notwithstanding the very wide divergence which exists between the first and last families [Scombresocidæ and Anabantidæ], and however dissimilar their members may appear to be at first sight, a gradual passage may be traced connecting the most aberrant types." Boulenger.

The admission, however, of certain families among the Percesoces by Boulenger is not approved by Jordan.

Family LVII Scombresocidæ. Placed in their order Synentognathi by Jordan and Evermann.

Genus 126 Scombresox
saurus 255 (Saury: Billfish)

Family LVIII Exocœtidæ. Included in Scombresocidæ by some. Placed in their order Synentognathi by Jordan and Evermann.

Genus 127 Exocœtus
volitans 256 (Flying Fish)

Genus 128 Exonautes
vinciguerræ 257 (Flying Fish)

Genus 129 Cypselurus
heterurus 258 (Flying Fish)

Family LIX Ammodytidæ.[1] Placed in Ophidiidæ, among the Anacanthini by Günther. Placed in their group Ammodytoidei, among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Genus 130 Ammodytes
dubius 259 (Sand Launce: Lant)
americanus 260 (Sand Launce: Sand Lant)
personatus 261 (Sand Launce)

Family LX Atherinidæ. Placed by Günther in his division Acanthopterygii Mugiliformes.

Genus 131 Menidia
menidia notata 262 (Silverside)

Genus 132 Labidesthes
sicculus 263 (Lake Silverside: Skipjack)

Genus 133 Atherinopsis
californiensis 264 (Pescado del Rey: California Smelt)

Family LXI Chiasmodontidæ. Placed in Gadidæ, among the Anacanthini by Günther. Placed in their group Trachinoidea among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Genus 134 Chiasmodon[2]
niger 265 (Black Swallower)

Family LXII Sphyræniidæ. Placed by Günther in his division Acanthopterygii Mugiliformes.

Genus 135 Sphyræna
argentea 266 (California Barracuda)

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[1] The following concerning a primitive species of sand-launce (*Embolichthys mitsukurii*) from Formosa is quoted from Jordan:

". . . . . the most primitive species of sand-lance, *Embolichthys mitsukurii*, occurs in Formosa. In this species, alone of the sand-lances the ventral fins are retained. These are jugular in position, as in the *Zoarcidæ*, and the rays are I, 3. The discovery of this species makes it necessary to separate the *Ammodytidæ* widely from the *Percesoces*."

Nevertheless not being certain where otherwise to place the family Ammodytidæ I leave it provisionally in Percesoces where Boulenger puts it, but it appears evident from the position of the pelvic fins in the above named species that its affinities are elsewhere.

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[2] "*Chiasmodon* . . . . . may be referred to the Percesoces, as the pelvic fins have only a ligamentous connexion with the pectoral arch." Boulenger

Family LXIII Centrolophidæ. Included in Stromateidæ by Boulenger. Included in Stromateidæ by Günther in his division Acanthopterygii Cotto-scombriformes. Placed in their group Scombroidei among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Genus 136 Palinurichthys

perciformis 267 (Ruddertish)

Family LXIV Stromateidæ. Placed by Günther in his division Acanthopterygii Cotto-scombriformes. Placed in their group Scombroidei among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Genus 137 Palometa

simillimus 268 (California Pompano; Poppy Fish)

Genus 138 Poronotus

triacanthus 269 (Dollarfish, Harvest-fish)

Family LXV Ireosteidæ. Placed in their group Scombroidei among the Acanthopterygii (Acanthopteri) by Jordan and Evermann. Included in Stromateidæ by Gill.

Genus 139 Ireosteus

enigmaticus 270 (Ragfish)

Family LXVI Aceotidæ. Placed in their group Scombroidei among the Acanthopterygii (Acanthopteri) by Jordan and Evermann. Included in Stromateidæ by Gill.

Genus 140 Aceotus

willoughbyi 271 (Ragfish)

Family LXVII Zaproridæ. Placed in their group Scombroidei among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Genus 141 Zaprora

silenus 272 (Prowfish)

ORDER XV ANACANTHINI (Anacanths, Cod-fishes and their allies). Place among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Family LXVIII Merluccidæ. Included in Gadidæ by some.

Genus 142 Merluccius

bilinearis 273 (Silver Hake; Whiting)

productus 274 (Pacific Hake)

Family LXIX Gadidæ

Genus 143 Boreogadus

saida 275 (Northern Pollack)

Genus 144 Pollachius

virens 276 (Pollack; Coalfish)

Genus 145 Theragra

lucensis 277 (Wall-eyed Pollack)

Genus 146 Microgadus

proximus 278 (California Tomcod)

tomcod 279 (Tomcod; Frost-fish)

Genus 147 Gadus

callarias 280 (Common Codfish)

macrocephalus 281 (Pacific Codfish)

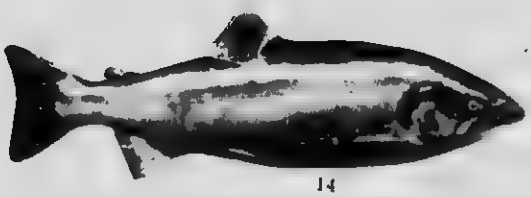
ogac 282 (Greenland Codfish)

Genus 148 Melanogrammus

aeglefinus 283 (Haddock)

PLATE III.

14 19. **Oncorhynchus keta** (Dog Salmon)
(Showing seasonal characteristics



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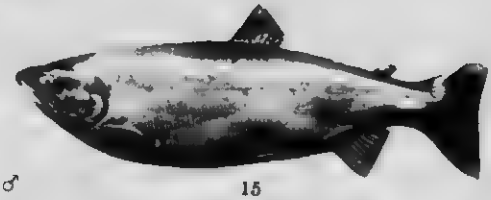

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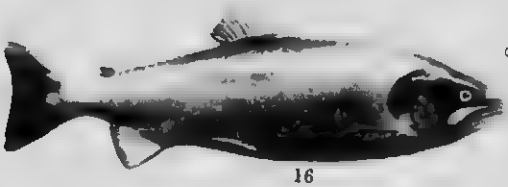

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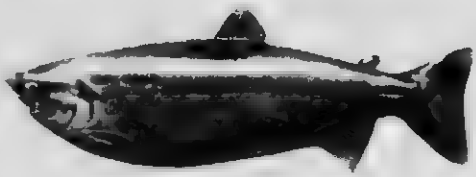

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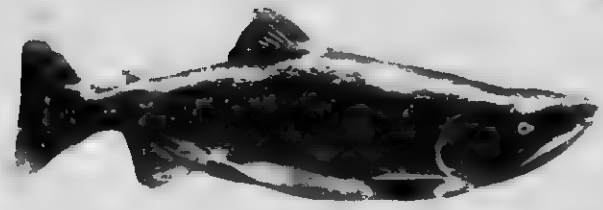

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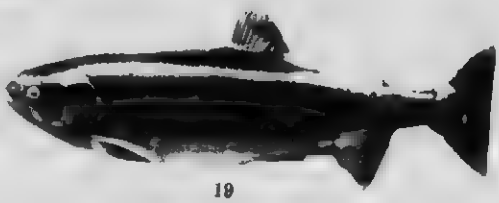

19

Genus 149 Antimora
viola 284 (Violet Antimora)
microlepis 285 (Small-scaled Antimora)
Genus 150 Lota
maculosa 286 (Fresh-water Ling: Burbot)
Genus 151 Molva
molva 287 (Ling)
Genus 152 Urophycis
regius 288 (Codling)
tenuis 289 (Codling: White Hake)
chuss 290 (Codling: Squirrel Hake)
Genus 153 Gaidropsarus
ensis 291 (Three-bearded Rockling)
Genus 154 Enchelyopus
cimbrius 292 (Four-bearded Rockling)
Genus 155 Brosme
brosme 293 (Cusk)
Family LXX Macrurida
Genus 156 Moseleya
cyclolepis 294
Genus 157 Albatrossia
pectoralis 295
Genus 158 Chalinura
serrula 296
filifera 297
Genus 159 Coryphaenoides
rupestris 298
Genus 160 Macrurus
holotrachys 299 (Grenadier)
acrolepis 300 (Grenadier)

ORDER XVI ACANTHOPTERYGII. (The vast majority of extant fishes. Such Teleosteans, although exceptions are numerous, as possess non-articulated rays in the dorsal and anal fins.) Acanthopteri of Jordan and Evermann.

SUB-ORDER 1 BERYCIFORMES[1] Formerly placed with Perciformes by Boulenger, but later established by him as a distinct division of Acanthopterygii.

Family LXXI Aphredoderidæ. Placed by Jordan and Evermann in their sub-order Xenarchi, of which it is the only family.

Genus 161 Aphredoderus
sayanus 301 (Pirate Perch)

SUB-ORDER 2 PERCIFORMES

Family LXXII Centrarchida
Genus 162 Pomoxis
annularis 302 (Crappie)
sparoides 303 (Calico Bass: Strawberry Bass)
Genus 163 Ambloplites
rupestris 304 (Rock Bass)

[1] "The most primitive of the Acanthopterygians, already well represented in the Chalk." Boulenger.

Genus 164 Chænobryttus
gulosus 305 (Warmouth: Goggle-eye)

Genus 165 Apomotis
cyanellus 306 (Green Sunfish)

Genus 166 Lepomis
auritus 307 (Long-eared Sunfish: Yellow Belly)
megalotis 308 (Long-eared Sunfish)
humilis 309 (Red-spotted Sunfish)
pallidus 310 (Blue Sunfish)

Genus 167 Eupomotis
euryorus 311
gibbosus 312 (Common Sunfish)

Genus 168 Micropterus
dolomieu 313 (Small-mouth Black Bass)
salmoides 314 (Large-mouth Black Bass)

Family LXXIII Percida

Genus 169 Stizostedion
vitreum 315 (Pike Perch)
canadense 316 (Sauger)

Genus 170 Perca
flavescens 317 (Yellow Perch: American Perch)

Genus 171 Percina
caprodes 318 (Log Perch)

Genus 172 Hadropterus
aspro 319 (Black-sided Darter)
guntheri 320 (Gunther's Darter)

Genus 173 Cottogaster
copelandi putnami 321 (Putnam's Darter)
shumardi 322 (Shumard's Darter)
cheneyi 323 (Cheney's Darter)

Genus 174 Boleosoma
nigrum 324 (Johnny Darter)
olmstedi 325 (Tessellated Darter)

Genus 175 Ammocrypta
pellucida 326 (Sand Darter)

Genus 176 Etheostoma
boreale 327 (Northern Darter)
iowæ 328
cæruleum 329 (Rainbow Darter)
flabellare 330 (Fan-tailed Darter)

Genus 177 Boleichthys
fusiformis 331 (Fusiform Darter)
exilis 332

Genus 178 Microperca
punctulata 333 (Least Darter)

Family LXXIV Serranida
Genus 179 Roccus
chrysops 334 (White Bass)
lineatus 335 (Striped Bass)
Genus 180 Morone
americana 336 (White Perch)
Family LXXV Sciænida
Genus 181 Cynoscion
regalis 337 (Common Weakfish)
nobilis 338 (White Sea Bass)
Genus 182 Aplodinotus
grunniens 339 (Fresh-water Drum: Lake Sheepshead)
Genus 183 Eques
lanceolatus 340 (Ribbon-fish)
Family LXXVI Bathymasterida.[1] Included in Pseudochromididæ by Boulenger. Placed in their group Trachinoidea by Jordan and Evermann.
Genus 184 Ronquilus
jordani 341 (Ronquil)
Family LXXVII Trichodontida.[2] Placed by Jordan and Evermann in their group Trachinoidea, with apparent good reason.
Genus 185 Trichodon
trichodon 342 (Sand-fish)
Family LXXVIII Sparida
Genus 186 Stenotomus
chrysops 343 (Porgy: Common Scup)
Genus 187 Archosargus
probatocephalus 344 (Sheepshead)
Family LXXIX Embiotocidæ. Placed by Jordan and Evermann in their sub-order Holconoti, of which it is the only family.
Genus 188 Cymatogaster
aggregatus 345 (Sparada: Viviparous Perch)
Genus 189 Brachyistius
frenatus 346 (Surf-fish)
Genus 190 Amphistichus
argenteus 347 (Surf-fish)
Genus 191 Embiotoca
jacksoni 348 (Common Surf-fish: Blue Surf-fish)
Genus 192 Tæniotoca
lateralis 349 (Striped Surf-fish)
Genus 193 Phanerodon
furcatus 350 (White Surf-fish)
Genus 194 Damalichthys
argyrosomus 351 (Porgee)

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[1]"The relations of the group are uncertain; externally they resemble the *Opsthognathidæ*, but the relation cannot be close, and the number of vertebræ is greatly increased." Jordan and Evermann.

[2]Stated by Boulenger to "agree in the character of the vertebral column with the Serranidæ," but "bearing some resemblance to the Trachinidæ, with which they have usually been associated."

Family LXXX Labridæ. Placed by Jordan and Evermann in their sub-order Pharyngognathi.

Genus 195 Tautogolabrus
adspersus 352 (Cunner)

Genus 196 Tautoga
onitis 353 (Tautog: Black-fish)

SUB-ORDER 3 SCOMBRIFORMES

Family LXXXI Scombridæ

Genus 197 Scomber
scombrus 354 (Common Mackerel)
japonicus 355 (Chub Mackerel)

Genus 198 Gymnosarda
pelamis 356 (Oceanic Bonito)

Genus 199 Thunnus
thynnus 357 (Tunny: Horse Mackerel)

Genus 200 Germo
alalunga 358 (Long-finned Albacore)

Genus 201 Sarda
sarda 359 (Bonito)
chilensis 360 (California Bonito)

Family LXXXII Gempylidæ. Trichiuridæ in part of some.

Genus 202 Escolar
violaceus 361 (Escolar)

Family LXXXIII Lepidopidæ.[1] Trichiuridæ in part of some.

Genus 203 Benthodesmus
atlanticus 362

Family LXXXIV Xiphiidæ

Genus 204 Xiphias
gladius 363 (Sword-fish)

Family LXXXV Carangidæ

Genus 205 Naucrates
ductor 364 (Pilot-fish)

Genus 206 Seriola
zonata 365 (Rudder-fish: Banded Seriole)

Genus 207 Decapterus
macarellus 366 (Mackerel Shad)

Genus 208 Trachurops
crumenophthalmus 367 (Goggler)

Genus 209 Caranx
crysos 368 (Hard-tail: Yellow Mackerel)

Genus 210 Selene
vomer 369 (Moonfish)

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[1] "The retention of the rudimentary caudal furnishes a slender character for the distinction of Lepidopidæ as a family from Trichiuridæ." Jordan and Evermann.

Family LXXXVI Pomatomidæ[1]
Genus 211 Pomatomus
saltatrix 370 (Bluefish)
Family LXXXVII Bramidæ
Genus 212 Brama
raii 371 (Pomfret)

SUBORDER 4 ZEOMORPHI. (A division established by Boulenger to contain the extinct Amphistiidæ, the only known representative of which is *Amphistium paradoxum*, Zeidæ (the John Dories), and Pleuronectidæ (the Flat-fishes).

Family LXXXVIII Pleuronectidæ. Placed by Jordan and Evermann in their sub-order Heterosomata (the Flat-fishes (Pleuronectidæ and Soleidæ)
Genus 213 Atheresthes
stomias 372 (Arrow-toothed Halibut)
Genus 214 Reinhardtius
hippoglossoides 373 (Greenland Halibut)
Genus 215 Hippoglossus
hippoglossus 374 (Halibut)
Genus 216 Lyopsetta
exilis 375
Genus 217 Eopsetta
jordani 376 (California Sole)
Genus 218 Hippoglossoides
platessoides 377 (Sand Dab; Rough Dab)
elassodon 378
Genus 219 Psettichthys
melanostictus 379 (Sole)
Genus 220 Pleuronichthys
cornosus 380 (Muddy Flounder)
Genus 221 Parophrys
vetulus 381 (Sharp-nosed Flounder)
Genus 222 Inopsetta
ischyra 382
Genus 223 Isopsetta
isolepis 383
Genus 224 Lepidopsetta
bilineata 384 (Two-lined Flounder)
Genus 225 Limanda
ferruginea 385 (Rusty Dab)
aspera 386 (Alaska Dab)
Genus 226 Pseudopleuronectes
americanus 387 (Winter Flounder; Common Flatfish)
Genus 227 Liopsetta
putnami 388 (Eel-back Flounder; Smooth Flounder)
Genus 228 Platichthys
stellatus 389 (Starry Flounder)

[1] "This family is closely related to the *Carangidæ*, from which group it seems to be an offshoot towards the Percoids." Jordan and Evermann.

Genus 229 Microstomus
pacificus 390 (Slippery Sole)
Genus 230 Glyptocephalus
cynoglossus 391 (Craig Fluke; Pole Flounder)
zachirus 392 (Long-finned Sole)
Genus 231 Lophopsetta
maculata 393 (Window Pane)
Genus 232 Citharichthys
sordidus 394 (Soft Flounder)

SUB-ORDER 5 GOBIIFORMES. Group Gobioidea in part of Jordan and Evermann.

Family LXXXIX Gobiidæ

Genus 233 Gobius
nicholsii 395 (Goby)
Genus 234 Lepidogobius
lepidus 396 (Goby)
Genus 235 Quietula
y-cauda 397 (Goby)
Genus 236 Clevelandia
ios 398 (Goby)

SUB-ORDER 6 DISCOCEPHALI.

Family XC Echeneididæ. Included in Scombridæ in his division Acanthopterygii Cotto-Scombriformes by Gunther.

Genus 237 Remora
remora 399 (Remora; Sucking-fish)

SUB-ORDER 7 SCLEROPAREI. (Mail-cheeked Fishes).* Equivalent to the sub-orders Loricati[2] and Cranioni[3] of Jordan and Evermann.

Family XCI Scorpænidæ.

Genus 238 Sebastes
marinus 400 (Snapper; Rose-fish)
Genus 239 Sebastolobus
alascanus 401
altivelis 402
Genus 240 Sebastodes
goodei 402a See addenda p. 117
paucispinis 403 (Jack-fish; Bocaccio)
melanops 404 (Black Sea Bass)

*"They form an isolated group, and have no real affinity with the Scombridæ, with which they have long been associated." Boulenger.

[2] "This group is distinguished by a single peculiar character, the extension of the third suborbital bone across the cheek to or toward the preopercle. From the *Cranioni*, an off-shoot from the same group, in which the development of the suborbital stay is carried much farther, the present group is distinguished by the normal character of the shoulder girdle." Jordan and Evermann.

[3] "Scapular arch abnormal, the post-temporal forming an integral part of the cranium and the postero-temporal crowded out of place by the side of the proscapula above or at the edge of the post-temporal. In other respects essentially as in the *Loricati*, from which the *Cranioni* are derived." Jordan and Evermann.

The families of Cranioni are Triglidæ, Peristediidæ and Cephalacanthidæ; no representatives of the second mentioned of which have been recorded for Canada.

mystinus 405 (Black Rock-fish: Priest-fish)
brevispinis 406
alutus 407
pinniger 408 (Orange Rock-fish)
introniger 409
ruberrimus 410 (Red Rock-fish: Tambor)
auriculatus dallii 411 (Brown Rock-fish)
rastrelliger 411a (Grass Rockfish). See addenda p. 117
caurinus 412
maliger 413 (Yellow-backed Rock-fish)
chrysomelas 414 (Black and Yellow Rock-fish)
nebulosus 415 (Yellow Spotted Rock-fish)
nigrocinctus 416 (Black Banded Rock-fish)

Family XCII Anoplopomatidæ.[1] Included in Comephoridæ by Boulenger.
Genus 241 Anoplopoma
fimbria 417 (Coal-fish: Skil)

Family XCIII Hexagrammidæ
Genus 242 Hexagrammos
decagrammus 418 (Boregat: Starry Rock Trout)
stelleri 419 (Greenling)
superciliosus 420 (Red Rock-trout)
Genus 243 Ophiodon
elongatus 421 (Cultus Cod)
Genus 244 Zaniolepis
latipinnis 422 (Broad-fin Cod)
Genus 245 Oxylebius
pictus 423 (Painted Cod)

Family XCIV Cottidæ.
Genus 246 Jordania
zonope 424
Genus 247 Scorpænichthys
marmoratus 425 (Cabezon)
Genus 248 Chitonotus
pugetensis 426
Genus 249 Icelinus
strabo 427
Genus 250 Astrolytes
fenestralis 428
Genus 251 Artedius
lateralis 429
asperulus 430
Genus 252 Axyrias
harringtoni 431
Genus 253 Artediellus
atlanticus 432

[1] "This family is closely allied to the *Hexagrammidæ*, differing chiefly in the normal development of the nostrils, which are formed as in the *Scorpænidæ* and as in fishes generally." Jordan and Evermann.

Genus 254 Ruscarius
meanyi 433
Genus 255 Icelus
bicornis 434
Genus 256 Radulinus
asperrimus 435
Genus 257 Asemichthys
taylori 436
Genus 258 Triglops
pingeli 437
beani 438
Genus 259 Pronistius
macellus 439
Genus 260 Hemilepidotus
hemilepidotus 440 (Red Sculpin)
Genus 261 Enophrys
bison 441 (Stone Sculpin: Buffalo Sculpin)
Genus 262 Cottus
asper 442 (Prickly Bull-head)
gulosus 443 (California Miller's Thumb)
semiscaber 444 (Rocky Mountain Bull-head)
ictalops 445 (B?)
ricei 446
onychus 447
pollicaris 448 (Olivaceous Miller's Thumb)
cognatus 449 (Great-Bear-Lake-Bull-head)
aleuticus 450
philonips 451
spilotus 452
Genus 263 Uranidea
bendirei 453
franklini 454 (Franklin's Sculpin)
gracilis 455 (Miller's Thumb: Blop)
formosa 456 (Lake Miller's Thumb)
Genus 264 Myoxocephalus
aeneus 457 (Grubby: Pigmy Sculpin)
scorpioides 458 (Arctic Sculpin)
scorpius 459 (European Sculpin)
groenlandicus 460 (Daddy Sculpin)
octodecimspinosus 461 (Common Sculpin: Long-spined Sculpin)
polyacanthocephalus 462 (Great Sculpin)
Genus 265 Dasycottus
setiger 463
Genus 266 Oncocottus
hexacornis 464 (Long-horned Sculpin)
Genus 267 Triglopsis. Placed in Comephoridæ by Boulenger.
thompsoni 465 (Lake Sculpin: Deep-water Blop)
ontariensis 466

PLATE IV

20-24 Oncorhynchus tschawytscha (Quinnat or Spring Salmon)

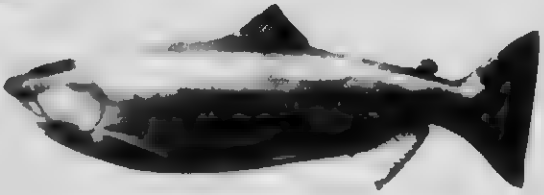
(Showing seasonal characteristics)

[See also plate V, figure 31.]

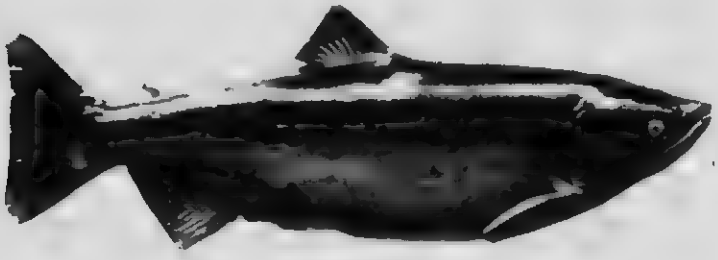
20

21

22



23



24

Genus 268 Gymnocanthus
pistilliger 467
tricuspis 468
Genus 269 Oligocottus
borealis 469
Genus 270 Blennicottus
acuticeps 470
globiceps bryosus 471 (Globe-headed Sculpin)
Genus 271 Blepsias
cirrhosus 472 (Prickled Sailor-fish)
Genus 272 Nautichthys
oculofasciatus 473 (Banded Sailor-fish)
Genus 273 Hemitripterus
americanus 474 (Sea Raven)
cavifrons 475 (Sea Raven)
Genus 274 Synchirus
gilli 476
Genus 275 Ascelichthys
rhodorus 477
Genus 276 Psychrolutes
paradoxus 478 (Spineless Sculpin)
Genus 277 Gilbertidia
sigolutes 479
Family XCV Rhamphocottida
Genus 278 Rhamphocottus
richardsoni 480 (Richardson's Sculpin)
Family XCVI Agonida.
Genus 279 Hypsagonus
quadricornis 481
Genus 280 Pallasina
barbata 482
aix 483
Genus 281 Leptagonus
decagonus 484
Genus 282 Podothecus
acipenserinus 485 (Common Alligator-fish)
Genus 283 Agonus
cataphractus 486 (Sea Poacher: Pogge)
Genus 284 Averruncus
emmelane 487 (Dark-coloured Alligator-fish)
Genus 285 Xystes
axinophrys 488
Genus 286 Bathyagonus
nigripinnis 489
Genus 287 Xenochirus
pentacanthus 490
Genus 288 Odontopyxis
trispinosus 491

Genus 289 Bothragonus
swanii 492
Genus 290 Aspidophoroides
olriki 493
monopterygius 494 (Sea Poacher: Alligator-fish)
inermis 495

Family XCVII Cyclopteridæ
Genus 291 Cyclopterus
lumpus 496 (Lump-fish: Lump-sucker)
Genus 292 Eumicrotremus
spinosus 497
orbis 498

Family XCVIII Liparididæ.[1] Included in Cyclopteridæ by Boulenger.
Genus 293 Neoliparis
atlanticus 499
floræ 500
greeni 501 (Green's Sucker)
Genus 294 Liparis
liparis 502 (Sea Snail)
cyclopus 503
fucensis 504
tunicatus 505
herschelinus 506
dennyi 507
pulchellus 508 (Stone Sucker)
Genus 295 Bathyphasma
ovigerum 509
Genus 296 Careproctus
ranula 510
Genus 297 Paraliparis
cephalus 511
ulochir 512

Family XCIX Triglidæ
Genus 298 Prionotus
carolinus 513 (Common Gurnard)

Family C Cephalacanthidæ.[2] Dactylopteridæ according to Boulenger.
Genus 299 Cephalacanthus
volitans 514 (Flying Robin: Flying Gurnard)

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[1] "Reasons for separating this family from the *Cyclopteridæ* and placing it farther from the *Cottidæ* exist in the continuous dorsal, the connection of dorsal and anal with the caudal, the more complete transformation of the ventral rays, the more slender and spine-like suborbital process, the expanded upper limb of the preopercular, the styliform inter-operculum, the shorter olfactory nerves, and the more elongate brain." Jordan and Evermann, after Garman.

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[2] As the young of this family with a single genus, which have comparatively short pectoral fins, were once regarded as a species belonging to a distinct genus *Cephalacanthus*, perhaps the valid genus ought to stand *Dactylopterus;* and in that case the name of the family would conform to that of the genus—Dactylopteridæ.

SUB-ORDER 8 JUGULARES

Family CI Batrachoididæ. Placed by Jordan and Evermann in their sub-order Haplodoci[1] of which it is the only family.

Genus 300 Porichthys
notatus 515 (Midshipman)

Family CII Gobiesocidæ. Placed by Jordan and Evermann in their sub-order Xenopterygii[2] of which it is the only family.

Genus 301 Caularchus
mæandricus 516 (Suck-fish: Cling-fish)

Family CIII Blenniidæ. Placed by Jordan and Evermann in their group Blennioidea.

Genus 302 Heterostichus
rostratus 517 (Kelpfish)

Genus 303 Bryostemma
polyactocephalum 518 (Tufted Blenny)
nugator 519

Genus 304 Apodichthys[3]
flavidus 520 (Yellow Blenny)

Genus 305 Xererpes
fucorum 521

Genus 306 Pholis[3]
gunnellus 522 (Gunnel: Butter-fish)
fasciatus 523
ornatus 524 (Ornamented Gunnel)

Genus 307 Anoplarchus
atropurpureus 525

Genus 308 Xiphistes
chirus 526

Genus 309 Xiphidion
mucosum 527 (Slimy Eel Pout)
rupestre 528 (Rock Eel Pout)

Genus 310 Leptoclinus
maculatus 529 (Langbarn)

Genus 311 Lumpenus
medius 530
anguillaris 531 (Snake Blenny)
fabricii 532
lampetræformis 533 (Serpent Blenny)

Genus 312 Stichæus
punctatus 534

[1] "This group is distinguished mainly by the undivided post-temporal, the reduction in the number of gill arches to 3, and by the absence of peculiarities shown by related forms." Jordan and Evermann.

[2] "A well-marked group of small fishes, constituting a single family." Jordan and Evermann.

[3] On account of the structure of the præcaudal vertebræ, *Apodichthys* and *Pholis* are not placed by Boulenger in Blenniidæ, but in a family—Pholididæ—by themselves. I do not venture to so place them, lest in so doing other genera which may be included in these two by Boulenger (*Xererpes* for instance) might also for the same reason require to be placed in Pholididæ.

Genus 313 Ulvaria
subbifurcata 535 (Radiated Shanny)
Genus 314 Eumesogrammus
praecisus 536

Family CIV Cryptacanthodidæ. Included in Blenniidæ by Günther. Placed by Jordan and Evermann in their group Blennioidea.

Genus 315 Delolepis
virgatus 537 (Wrymouth)
Genus 316 Cryptacanthodes
maculatus 538 (Wrymouth: Ghost-fish)

Family CV Anarhichadidæ. Included in Blenniidæ by some. Placed by Jordan and Evermann in their group Blenn'oidea.

Genus 317 Anarhichas
latifrons 539 (Wolf-fish)
minor 540 (Wolf-fish)
lupus 541 (Wolf-fish)
lepturus 542 (Alaska Wolf-fish)
Genus 318 Anarrhichthys
ocellatus 543 (Wolf Eel)

Family CVI Scytalinidæ. Included in Zoarcidæ by Boulenger. Placed by Jordan and Evermann in their group Ophidioidea.

Genus 319 Scytalina
cerdale 544

Family CVII Zoarcidæ. Placed by Jordan and Evermann in their group Ophidioidea.

Genus 320 Zoarces
anguillaris 545 (Eel Pout)
Genus 321 Lycodopsis
pacificus 546 (Pacific Eel Pout)
Genus 322 Lycodes
vahlii 547
zoarchus 548
reticulatus 549
frigidus 550
terræ-novæ 551
Genus 323 Lycodalepis
mucosus 552
Genus 324 Lycenchelys
verrillii 553
paxillus 554
Genus 325 Bothrocara
mollis 555
Genus 326 Gymnelis
viridis 556
stigma 557
Genus 327 Lycocara
parrii 558

Family CVIII Derepodichthyidæ. Included in Zoarcidæ by Boulenger. Placed by Jordan and Evermann in their group Ophidioidea.

Genus 328 Derepodichthys
alepidotus 559

SUB-ORDER 7 TAENIOSOMI[1]

Family CIX Trachypteridæ.

Genus 329 Trachypterus
rex-salmonorum 560 (King-of-the-Salmon)

ORDER XVII PEDICULATI (Anglers or Fishing-frogs and their allies)

Family CX Lophiidæ

Genus 330 Lophius
piscatorius 561 (Angler: Fishing-frog: Monk-fish)

Family CXI Ceratiidæ

Genus 331 Ceratias
holbolli 562 (Sea Devil)

ORDER XVIII PLECTOGNATHI. (Teleosteans, which have combined with other characters, the gill-openings very much reduced). Placed as a group in Acanthopterygii (Acanthopteri) by Jordan and Evermann.[2]

SUB-ORDER 1 SCLERODERMI

Family CXII Balistidæ

Genus 332 Balistes
carolinensis 563 (Trigger-fish)

Family CXIII Monacanthidæ.[3] Included in Balistidæ by some.

Genus 333 Monacanthus
hispidus 564 (File-fish)

SUB-ORDER 2 GYMNODONTES

Family CXIV Diodontidæ

Genus 334 Chilomycterus
schœpfi 565 (Common Burr-fish)

Family CXV Molidæ

Genus 335 Mola
mola 566 (Sun-fish: Head-fish)

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[1] "Remotely related to the Scombriform fishes, and perhaps derived from the same ancestral stock as the *Trichiuridæ*." Jordan and Evermann.

[2] "From the *Squamipinnes* the *Plectognathi* are certainly descended." "The close connection of these groups leads us to subordinate the *Plectognathi* to the *Acanthopteri* and to place its 3 sub-orders in their natural position as an offshoot from the *Squamipinnes*." Jordan and Evermann.

[3] "Closely allied to the *Balistidæ*, differing chiefly in having the first dorsal represented by a single spine, behind which is sometimes a rudiment." Jordan and Evermann.

CHECK LIST

1. **Myxine limosa*** Girard.
   American Hagfish.
   Marine. Parasitic: burrowing into the flesh of fishes.
   Coast of North America, south to Cape Cod: recorded from Grand Manan, New Brunswick (Girard, 1858): also recorded from Devil's Island, some 70 miles off Nova Scotia, at a depth of 54 fathoms (Honeyman, 1886, as *M. glutinosa*).

2. **Polistotrema stouti** Lockington. (Plate XIII, figures 151 and 152).
   California Hagfish.
   Marine. Parasitic: burrowing into the flesh of fishes.
   Ranges from coast of Vancouver Island southward to coast of California.

3. **Petromyzon marinus** Linnaeus.
   Great Sea Lamprey.
   Anadromous. Parasitic: attaching itself to fishes.
   Maritime Provinces, and Gaspe Bay (Stafford, 1905-1906), and presumably Gulf of St. Lawrence, perhaps extending still further north: "often found attached to the Mackerel" at Tignish, Prince Edward Island (Cornish): Atlantic coast of North America and Europe, including the British Isles—south on the American side to Chesapeake Bay: according to Yarrell (1859) found in the Mediterranean, and according to him included among the fishes of Iceland by Reinhardt: "also found on the west coast of Africa" (Bridge, 1910).

4. **Petromyzon marinus unicolor** De Kay.
   Landlocked Lamprey.
   Landlocked in lakes. Parasitic: attaching itself to fishes.
   Recorded from Lake Champlain (De Kay, 1842, as *Ammocœtes unicolor*—larva): occurs in northern and central lakes of State of New York; abounding in Cayuga Lake.

5. **Ichthyomyzon concolor** Kirtland.
   Silver Lamprey.
   Lacustrine and fluviatile. Parasitic: attaching itself to fishes.
   St. Lawrence River and Great Lakes region: presumably Michipicoten River (Agassiz, 1850, as *Ammocœtes borealis*): Hill River, Hudson Bay region (Preble, 1900): upper Mississippi Valley.

6. **Ichthyomyzon castaneus** Girard.
   Northern Lamprey.
   Fluviatile. Parasitic: attaching itself to fishes.
   Assiniboine River, Portage la Prairie, Manitoba (Thompson Seton, 1898); and locally recorded from the States of Minnesota, Kansas, Arkansas, and Louisiana.

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*The European Hagfish (*M. glutinosa*) and the American Hagfish (*M. limosa*) have long been regarded as forms of one and the same species. Characters which specifically diagnose them have been pointed out in "A Revision of the Myxinoids of the Genus *Myxine*," by Mr. C. Tate Regan, and are here quoted.

Myxine glutinosa. 6 (exceptionally 7) branchial pouches. 7 to 9 teeth in the first series and 8 to 10 in the second, the 2 most anterior teeth in each series united. Pores 24–34 + 54–64 + 10–14. Length of head $3\frac{3}{8}$ to 4 in the total length.
Northern and western coast of Europe.

Myxine limosa. 6 branchial pouches. 9 teeth in the first series and 10 in the second, the two most anterior teeth in each series united. Pores 26 + 70 + 10. Length of head $3\frac{1}{4}$ in the total length.
Atlantic coasts of North America

It may be mentioned that in the "Revision" there is also a diagnosis, quoted below, of a new species *M. atlantica* from western North Atlantic, although it may not be indigenous to the coasts of Canada

Myxine atlantica n. sp. 6 branchial pouches. 9 teeth in the first series and 8 in the second, the two most anterior teeth in each series united. Pores 28 + 64 + 12. Length of head $3\frac{1}{2}$ in the total length.
Western North Atlantic.

7. **Entosphenus tridentatus** Gairdner.
Three-toothed Lamprey.
Anadromous. Parasitic: attaching itself to fishes.
British Columbia: Pacific coast of North America, ranging from the Aleutian Islands to southern California.

8. **Lampetra aurea** Bean.
Brook Lamprey.
Mostly abounding in streams. Parasitic: attaching itself to fishes.
Yukon River, and presumably Great Slave Lake (Richardson, 1836, as *Petromyzon fluviatilis*):* streams of Alaska and Kamchatka.

9. **Lampetra ciberia** Girard.
Brook Lamprey.
Fluviatile. Parasitic: attaching itself to fishes.
Ranges from British Columbia southward to the Sacramento River, California.

10. **Lampetra wilderi** Gage.
Small Black Lamprey: Brook Lamprey.
Mostly abounding in rivers, and ascending small streams to spawn. Parasitic: attaching itself to fishes.
State of New York and Great Lakes region westward, and embracing the Ohio valley to the Mississippi valley: perhaps to be found in Ontario and Manitoba.†

11. **Notorhynchus maculatus** Ayres.
Cow Shark.
Marine.
Doubtless occurs in British Columbian waters as it is known to range from the coast of the State of Washington to California, and is "rather common northward, especially in Humboldt Bay" (Jordan and Evermann).

12. **Hexanchus corinus** Jordan and Gilbert.
Shovel-nosed Shark.
Marine.
Vancouver Island and Puget Sound, southward to Bay of Monterey, California.

13. **Catulus brunneus** Gilbert.
Cat Shark: Swell Shark.
Marine.
Specimen (very young) in the Provincial Museum, Victoria, from Nanaimo, Vancouver Island: coast of California.‡

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*"*P. fluviatis*, Richardson, mentioned only as a small lamprey attached to an Inconnu in Great Slave Lake." Jordan and Evermann. "The proper identification of the specimen is uncertain; it is probably the same as *L. aurea*." Evermann and Goldsborough.

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†"I am not positive as to the occurrence of this species in our waters, though I have often taken a small Lamprey in the northern and western streams of Ontario and in the rivers of Manitoba which I believe to be the Brook Lamprey." Nash.

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‡At the time of the publication of Jordan and Evermann's 'Fishes of North and Middle America' (1896) only one specimen of this species was known, "a female with mature eggs."

14. Galeorhinus zyopterus Jordan and Gilbert

Oil Shark: Tope.

Marine.

Ranges from coast of California, from San Francisco to Cerros Island, Lower California, Mexico; recorded from British Columbia.

15. Prionace glauca Linnæus.

Great Blue Shark.

Marine.

Maritime Provinces and Banks (Newfoundland) coasts of California and Brazil (Valenciennes, 1838, as *Squalus hirundinaceus*): more common in seas of Europe: "an inhabitant of the Mediterranean, and appears to occur much more frequently on the Devonshire and Cornish coasts than on any other part of the British Islands; it has been taken in the Bristol Channel, and in Swansea Bay; also off the south and east coasts of Ireland, and has been known to wander even as far north as Zetland" (Yarrell, 1859).

16. Alopias vulpes Gmelin.

Thresher.

Pelagic.

Very cosmopolitan in the seas: Atlantic and Pacific Oceans: "occasionally taken [in Nova Scotia] in fishing nets, to their great detriment; a fine specimen in the collection of King's College, Windsor, N.S." (Jones, 1879): according to Knight, Basin of Minas and Gulf of St. Lawrence* (1866, as *Carcharias vulpes*): also "Cumberland Bay and Bay des Chaleurs" (Cox, 1895): "commonest of the larger Sharks frequenting the British coasts" (Bridge, 1910): common in the Mediterranean: coast of New Zealand (Gunther, 1880).

17. Lamna cornubica Gmelin.

Porbeagle: Mackerel Shark.

Pelagic.

Gulf of St. Lawrence and Maritime Provinces: north Atlantic and north Pacific: "occurs occasionally on the northern and frequently on the southern coasts of this country [Great Britain] and also on different parts of the Irish coast—not rare, according to Dr. Baikie, among the Orkney Islands" (Yarrell, 1859): "Haast has found this species also off the coast of New Zealand" (Gunther, 1880).

18. Carcharodon carcharias Linnæus.

Great White Shark.

Pelagic.

Temperate and tropical seas: occasional on the Atlantic and Pacific coasts of North America, and for that reason included here: "found in all tropical and sub-tropical seas, from the Mediterranean to Australia and New Zealand" (Bridge, 1910, as *C. rondeletii*): Cape of Good Hope (Smith, 1842, as *C. capensis*): "its distribution evidently girdling the globe" (Jordan).

*Knight says:—"It is a great enemy to the small whales in the Gulf of St. Lawrence."

PLATE V.

25-30. Oncorhynchus kisutch (Coho or Silver Salmon)
(Showing seasonal characteristics)

31. Oncorhynchus tschawytscha (Quinnat or Spring Salmon)
(Showing spawning characteristic)

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19. Cetorhinus maximus Gunner
Basking Shark
Pelagic.
Maritime Provinces and British Columbia. Arctic seas, southw[illegible] on the American sides to Virginia and California, and on the European side to F[illegible] and the Mediterranean according to Bridge (1910) "fairly common off the co[illegible] [illegible]land, and it has been seen or captured at various points on the western coast of Ireland, and the eastern and southern coasts of England," and according to him "although generally described as a northern form *Cetorhinus* is known to occur in Australian waters.

20. Squalus acanthias Linnaeus. (Plate I, figure 1.)
Picked Dogfish.
Marine.
Coast of Labrador (Storer, 1850 and 1853); Gulf of St. Lawrence, Gaspe Bay, and Maritime Provinces ("at Tignish the picked dogfish is very common and extremely destructive" (Cornish)); both coasts of north Atlantic, extending south to Cuba on the American side; Knight says "found everywhere on the coast of North America, from the Delaware to Davis' Straits" (1869, as *Spinax acanthus*); common on coasts of the British Islands, including the Orkney Islands (Yarrell, 1859), and other European coasts.

21. Squalus suckii Girard
California Dogfish
Marine.
British Columbia, ranges from the Aleutian Islands to California; once recorded from Bering Island, Bering Sea (Stejneger). *S. fernandinus* Molina, of Chile perhaps referable to this species.

22. Centroscymnus cœlolepis Bocage and Capello
Spiny Dogfish.
Marine.
"Abundant on the fishing banks" off the coast of Nova Scotia (Jones, 1879); occasional off the coast of Massachusetts; coast of Portugal and adjacent coasts of the Atlantic.

23. Centroscyllium fabricii Reinhardt.
Spiny Dogfish.
Marine.
Arctic seas and coasts of Greenland, "fishing banks off the coast" of Nova Scotia (Jones, 1879), occasional off the coast of Massachusetts, also said to be found "in the opposite hemisphere at the Falkland Islands" (Bridge, 1910).

24. Somniosus microcephalus Bloch.
Sleeper Shark; Greenland Shark.
Marine.
Arctic seas; coast of Labrador; "the only specimen of this rare northern form the author has had the opportunity of examining was taken off Halifax Harbour in February 1863" (Jones, 1879, as *Læmargus borealis*); an individual from opposite the mouth of the Saguenay River, Province of Quebec (Whiteaves, 1886); on the American sides south to Cape Cod, and coast of Oregon. "numerous instances are recorded of its capture off the coast of Great Britain, especially in northern waters" (Bridge, 1910); and recorded from other European coasts, ranging southward to France.

25. Pristis pectinatus Latham.
Common Sawfish.
Marine.
"West Indies and Florida; abundant in the Gulf of Mexico; ascending the lower Mississippi": "occurs northward at least to Beaufort, North Carolina" (Jordan and Evermann): once, but long ago, recorded from coast of Nova Scotia (Denys, 1672).*

26. Raja erinacea Mitchill.
Common Skate.
Marine.
Gulf of St. Lawrence, Gaspe Bay, and Maritime Provinces, including Grand Manan, Bay of Fundy: in the United States from the coast of Maine southward to Virginia.

27. Raja ocellata Mitchill.
Big Skate.
Marine.
Maritime Provinces to the coast of the State of New York.

28. Raja fyllæ Lütken.
Marine.
Based upon a small specimen, some 8 inches in length, from Davis Straits, Greenland (Lütken, 1887): given here owing to its occurrence in Davis Straits.

29. Raja radiata Donovan. (Plate I, figure 2).
Starry Ray.
Marine.
Both sides of North Atlantic: on the American side seemingly recorded at least as far south as Staten Island, State of New York (De Kay, 1842, as *R. americana*): Maritime Provinces, including the Bay of Fundy: common on the eastern coast of Nova Scotia (Cornish, 1901-2): on the eastern side of the Atlantic "inhabits the northern seas only, extending from the British Isles to Iceland and Greenland, the coast of Norway, and the Baltic as far as Scania" (Yarrell, 1859, on the authority of the *Skandinaviens Fiskar*).

30. Raja senta Garman.
Marine.
Questionable on the coast of Labrador† (Schmitt, 1904): Banks of Newfoundland southward to Cape Cod.

31. Raja lævis Mitchill.
Barn-door Skate.
Marine.
Maritime Provinces and Atlantic coast of United States south to coast of Florida.

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*"L'espadon est un poisson gros comme une vache, de six à huit piéds de longueur, qui va en diminuant vers la queue: il a sur le nez un espadon, dont il prend le nom, qui est long d'environs trois piéds, large d'environs quatre bons doigts: il y a de deux costez de cet espadon des pointes longues d'un pouce, de pareille distance les uns des autres, et va étraissessant vers le bout; il ne plye point et est dur et fort roide." L'Histoire Naturelle, par Nicholas Denys, Paris, 1672: quoted after Cox.

†Queried by Kendall in his 'Check List of the Fishes recorded from the Labrador Peninsula.'

32. Raja granulata* Gill.
Marine.
"This new species is given in Messrs. Goode and Bean's list of N. E. American Fishes as occurring on La Have fishing bank" (Jones, 1879).

33. Raja rhina Jordan and Gilbert.
Marine.
Recorded from Departure Bay, Vancouver Island: ranges from coast of Alaska southward to Bay of Monterey, California.

34. Raja binoculata Girard.
Big-Skate-of-California.
Marine.
British Columbia: ranges from coast of Alaska southward to Bay of Monterey, California.

35. Raja stellulata Jordan and Gilbert.
Marine.
British Columbia: ranges from Unalaska, Aleutian Islands, southward to Santa Barbara, California.

36. Raja abyssicola Gilbert and Thoburn.
Deep Sea Ray.
B. hybial.
Off Queen Charlotte Islands, British Columbia: known from a single male specimen, obtained at a depth of 1,588 fathoms.†

37. Dasyatis centrura Mitchill.
Common Sting Ray.
Marine.
May possibly be found in the Bay of Fundy as it is known to range from Cape Hatteras to the coast of Maine.

38. Chimæra affinis Capello.
Chimæra.
Bathybial.
Atlantic Ocean: said to occur on the American coast as far south as Cape Cod: "a specimen collected on the south-eastern portion of La Have Bank":‡ Gulf Stream (Gill, 1877, as *Ch. plumbea*), and Lat. 40° N., Long. 60° W., (Gill, 1883, as *Ch. abbreviata*): recorded from off the coast of Portugal (Günther, 1880).

39. Hydrolagus colliei Lay and Bennett. (Plate XIII, figures 154 and 155).
Ratfish.
Marine.
British Columbia: ranges from coast of Alaska southward to Bay of Monterey, California: "especially plentiful off South-eastern Alaska, and about the wharves at Esquimalt" (Bridge, 1910).

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*"A doubtful species, imperfectly described, apparently not different from *R. laevis*." Jordan and Evermann.

†No ray was ever found at any such a depth as this before. A ray from a depth of 565 fathoms is included in the list of deep-sea fishes obtained by the dredgings of the 'Challenger' (Günther); and "*R. mamillidens*, a uniform jet-black species, has been obtained from a depth of 597 fathoms in the Bay of Bengal" (Bridge), but so far as available records show none have been obtained at a greater depth than some 600 fathoms except this one.

‡This specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. XIX.

40. Polyodon spathula Walbaum.

Paddlefish.

Lacustrine and fluviatile.

Exceedingly rare in Canada—the following appearing to be its records: Lake Huron, near Sarnia, Ontario (two specimens);* Spanish River, District of Sudbury (one specimen); Lake Helen, Nipigon River (one specimen); Lake Erie (if from the Canadian side of the lake—one specimen); plentiful in the Mississippi valley and southern United States; also recorded from Ohio River (Le Sueur, 1817, as *Platirostra edentula*; and Rafinesque, 1820, as *Acipenser lagenarius*); and from Lake Ontario (Rafinesque, 1820, as *Proceros cattatus*).

41. Acipenser transmontanus Richardson.

White Sturgeon.

Either anadromous or remaining permanently in fresh water.

British Columbia: recorded from Pine Island Lake and Saskatchewan River (Richardson, 1836); extends from Alaska southward to Monterey, California.

42. Acipenser medirostris Ayres.

Green Sturgeon.

Frequents the sea or brackish water, seldom entering rivers beyond their mouths.

British Columbia: ranges from San Francisco northward; "not common north of the Straits of Fuca" (Jordan and Evermann).

43. Acipenser sturio oxyrhynchus† Mitchill. (Plate I, figure 3).

Common Sturgeon.

Anadromous—perhaps spawning in brackish as well as in fresh water.

Maritime Provinces and St. Lawrence River and tributaries, although a coastwise sturgeon reported from Manitoba and from northern lakes of the interior (Eigenmann, 1894); in the United States ranging from Maine to South Carolina.

44. Acipenser rubicundus Le Sueur.

Lake Sturgeon.

Lacustrine and fluviatile.

Provinces of Ontario and Quebec; St. Lawrence River, Lake of the Woods, and Prairie Provinces; also recorded from Labrador; Hudson Bay, and Albany River, Rupert Land (Richardson, 1836, as *A. rupertianus*); Mississippi and Ohio valleys and tributary waters.

45. Acipenser brevirostrum Le Sueur.

Short-nosed Sturgeon.

Anadromous; entering the larger rivers and estuaries.

Recorded from St. Lawrence River and tributaries (Fortin, 1864); said to range in the United States from Cape Cod to Florida—reported from the coast of Texas.

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*"Old fishermen near Point Edward on the Lambton county shore vaguely refer to other specimens occurring in Lake Huron." Prince.

†This is a sub-species of the common sturgeon (*A. sturio*) of Europe, from which it chiefly differs in the number and character of the stellate ossifications.

46. Lepidosteus osseus Linnæus. (Plate I, figures 4 and 5).
Common Garpike.
Lacustrine and fluviatile.
St. Lawrence River, and Provinces of Ontario and Quebec, westward to Lake Huron: very plentiful near Belleville, Bay of Quinte: in the United States ranges from Vermont westward to the Great Lakes region and southward to the Rio Grande.

47. Lepidosteus platostomus Rafinesque.
Short-nosed Garpike.
Lacustrine and fluviatile.
Not common in Canada: Great Lakes region, and Ohio and Mississippi valleys

48. Amia calva Linnæus. (Plate I, figures 6 and 7).
Bowfin: Dogfish.
Lacustrine and fluviatile
St. Lawrence River, and Provinces of Ontario and Quebec, westward to Lake Huron: very plentiful near Belleville, Bay of Quinte: in the United States, ranges from the Mississippi valley and Great Lakes region southward to the southern States.

49. Tarpon atlanticus Cuvier and Valenciennes.
Tarpon.
Marine, and fluviatile in that it ascends rivers from the sea.
Ordinarily ranges from Long Island to Brazil: common on coast of Florida: also occurs on the coasts of the West Indies: "common about Porto Rico where it evidently breeds, as numerous immature individuals were taken at Hucares and Fajardo" (Evermann and Marsh, 1899): twice recorded from Nova Scotia, from off Isaac's Harbour, and from Harrigan Cove in eel-grass.*

50. Albula vulpes Linnæus.
Lady-fish.
Marine.
All warm and tropical seas: ordinarily ranges on the American coasts northward to Long Island: a specimen obtained in September 1911, at Black's Harbour, Bay of Fundy, New Brunswick.†

51. Hyodon alosoides Rafinesque.
Shad Mooneye.
Lacustrine and fluviatile.
Manitoba and presumably Saskatchewan: Ohio River region.

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*This specimen which was speared on 6th September, 1906, is in the Provincial Museum at Halifax

†This specimen was received from Mr. William McIntosh, Curator of the Museum of the Natural History Society of New Brunswick, for identification. Not having seen the lady-fish before, and as the preservatives have considerably altered the appearance of the specimen, I should mention that it differs at least in one particular from descriptions and figures, viz: the snout does not appear to overlap the mouth. But as this species passes through a metamorphosis, being at first a band-shaped larval form, and as this specimen is only about 7 inches in length, whereas the species attains a length of from 1½ ft. to 3ft., possibly every character had not been completed even although in effect the fish had passed through its metamorphosis when not more than an inch or two in length. This I do not know, but other external characters, particularly the heavy adipose covers over the eyes, appear to determine it a specimen of the lady-fish. Internal characters could not be examined, as all the organs had become pasty and undecipherable

52. Hyodon chrysopsis Richardson.
Western Goldeye.
Lacustrine and fluviatile.
Provinces of Manitoba and Saskatchewan.

53. Hyodon tergisus Le Sueur. (Plate VIII, figures 60 and 61).
Mooneye: Toothed Herring.
Lacustrine and fluviatile.
Provinces of Ontario and Quebec, including the St. Lawrence and Ottawa Rivers and Lake St. Peter (Montpetit, 1897): Great Lakes region, including Lake of the Woods: Ohio and Mississippi valleys.

54. Dorosoma cepedianum Le Sueur.
Gizzard Shad: Hickory Shad.
Marine, in brackish water, lacustrine, sometimes landlocked, and fluviatile.
Recorded from St. John River, Fredericton, New Brunswick: "no doubt occurs in the St. Lawrence and doubtless also in the Ottawa River"* (Prince, 1909): ranges along the Atlantic coast at least from Cape Cod to Mexico; and extends westward in the United States to the Mississippi: introduced into Lakes Erie and Michigan.

55. Clupea harengus Linnæus. (Plate VIII, figures 62 and 63)
Common Herring.
Marine: but according to Boulenger, as first shewn by Günther, the fry or 'white-bait' have a predilection for brackish water.
Temperate and colder parts of the northern Atlantic and seas of Europe, including the British Isles: most abundant on the American side north of Cape Cod, extending to the coast of Labrador and embracing Newfoundland: occurs in Gaspe Bay (Stafford, 1905-1906): recorded from south shore of River St. Lawrence (Fortin, 1862, as *C. sardina*): extends in the United States as far south as Cape Hatteras, North Carolina.

56. Clupea pallasii Cuvier and Valenciennes. (Plate VIII, figures 64 and 65).
California Herring.
Marine.
British Columbia and Puget Sound: ranging over the entire Pacific coast from San Diego, California, to Alaska and Kamchatka.

57. Clupanodon cæruleus Girard.
California Sardine.
Marine.
British Columbia and Puget Sound, extending southward to Magdalena Bay, Lower California.

58. Pomolobus chrysochloris Rafinesque.
Blue Herring: Skipjack.
Lacustrine and fluviatile.
Great Lakes (at least Lakes Erie and Michigan into which it has introduced itself through the canals): Ohio River (Rafinesque, 1820), Mississippi Valley, and enters the Gulf of Mexico.

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*This, quoted from a review of Mr. C. W. Nash's 'Check List of the Fishes of Ontario', as to the occurrence of the fish in the Ottawa River at least needs substantiating.

59. Pomolobus mediocris Mitchill.
Hickory Shad: Fall Herring.
Marine.
Recorded from vicinity of Campobello Island, New Brunswick. (Cox, 1895, as *Clupea mediocris*): extends from Cape Cod to coast of Florida.

60. Pomolobus pseudoharengus Wilson.
Gaspereau: Alewife.
Anadromous or landlocked.
Widely distributed from the coasts of the Maritime Provinces and Labrador, and embracing the St. Lawrence River, to Lake Ontario, in which lake it is very abundant: extends along the Atlantic coast of the United States from Maine southward to the Carolinas: occurs landlocked in certain lakes of the State of New York.

61. Pomolobus æstivalis Mitchill.
Glut Herring.
Anadromous.
Extends from the Maritime Provinces to the Carolinas, but more abundant southward than northward.

62. Alosa sapidissima Wilson. (Plate VII, figure 59).
American Shad.
Anadromous.
Extends, or did extend, from Labrador, Newfoundland, Gulf of St. Lawrence, and Maritime Provinces, to the Gulf of Mexico; but its distribution in our waters more limited and local than formerly: "occasional in Baie-des-Chaleurs" (Cox, 1895): still frequents the shores of St. John and Albert Counties, and ascends the St. John River, New Brunswick; as well as occurring in Chignecto, Cobequid and St. Marys Bays, and Bay Verte, Maritime Provinces: mentioned as occurring in Gaspe Bay (Stafford, 1905-1906, as *Clupea sapidissima*): "formerly abundant in the lower Ottawa, but has abandoned that river, and its occurrence within our boundaries [Ontario] is now only accidental" (Nash, 1908,): has been introduced into Pacific coast waters by the United States Fish Commission, and has "been established in several of the tributaries of the Mississippi River, notably the Ohio River" (Goode, 1888).

63. Brevoortia tyrannus Latrobe. (Plate VIII, figures 66 and 67).
Menhaden: Mossbunker.
Marine: "probably spawning in brackish water."
Ranges from Nova Scotia, at least from St. Marys Bay, southward to Brazil;* and mentioned by Jones (1879) in his "List of the Fishes of Nova Scotia" on the authority of Dr. Gilpin: being migratorially erratic, its geographical range varies greatly from year to year: according to Goode (1888), as defined for 1877, its wanderings "bounded by the parallels of north latitude 25° and 45°; on the continental side by the line of brackish water; on the east by the inner boundary of the Gulf Stream."†

*"Represented on the coast of Brazil by *Brevoortia tyrannus aurea* Agassiz." Jordan and Evermann.

†Goode goes on to say:—"In the summer it occurs in the coastal waters of all the Atlantic States from Maine to Florida, in winter only south to Cape Hatteras: the limits of its winter migration oceanwards cannot be defined, though it is demonstrated that the species does not occur about the Bermudas or Cuba, nor presumably in the Caribbean Sea."

64. Engraulis mordax Girard.
California Anchovy.
Marine.
British Columbia: ranges from southern Alaska to coast of Lower California, Mexico.

65. Mitchillina bairdii Goode and Bean.
Bathybial.
Grand Banks of Newfoundland (Goode and Bean, 1879, as *Alepocephalus bairdii*).

66. Coregonus coulterii Eigenmann and Eigenmann.
Coulter's Whitefish.
Fluviatile.
Kicking Horse River at Field and Golden, British Columbia.

67. Coregonus williamsoni Girard.
Rocky Mountain Whitefish.
Lacustrine and fluviatile: frequenting clear waters.
Ranges from Alberta and Montana westward to coasts of British Columbia and States of Washington and Oregon; and southeastward to Utah.

68. Coregonus kennicotti Milner.
Broad Whitefish.
Lacustrine and fluviatile.
Mackenzie and Yukon Rivers, and certain rivers of Alaska: also Great Bear Lake, and Lake Bennett (Evermann and Goldsborough, 1907): the type from Fort Good Hope (Milner, 1883): possible record Hudson Bay (Pennant, 1788, as *Salmo lavaretus*).

69. Coregonus richardsonii* Günther.
Richardson's Whitefish.
Fluviatile.
The type from Arctic North America locality unknown (Günther, 1866): Mackenzie River Basin (Preble, 1903-4).

70. Coregonus quadrilateralis Richardson.
Round Whitefish: Shad-Waiter.
Mostly lacustrine, seldom entering rivers.
Most widely distributed of our whitefishes: extending from Labrador, New Brunswick, and the New England States to British Columbia, Alaska, and the Arctic regions; and embracing within its range Hudson Bay (Richardson, 1823), Bathurst Inlet and Great Bear Lake (Richardson, 1836), Fort Enterprise (type locality), and Great Lakes region.

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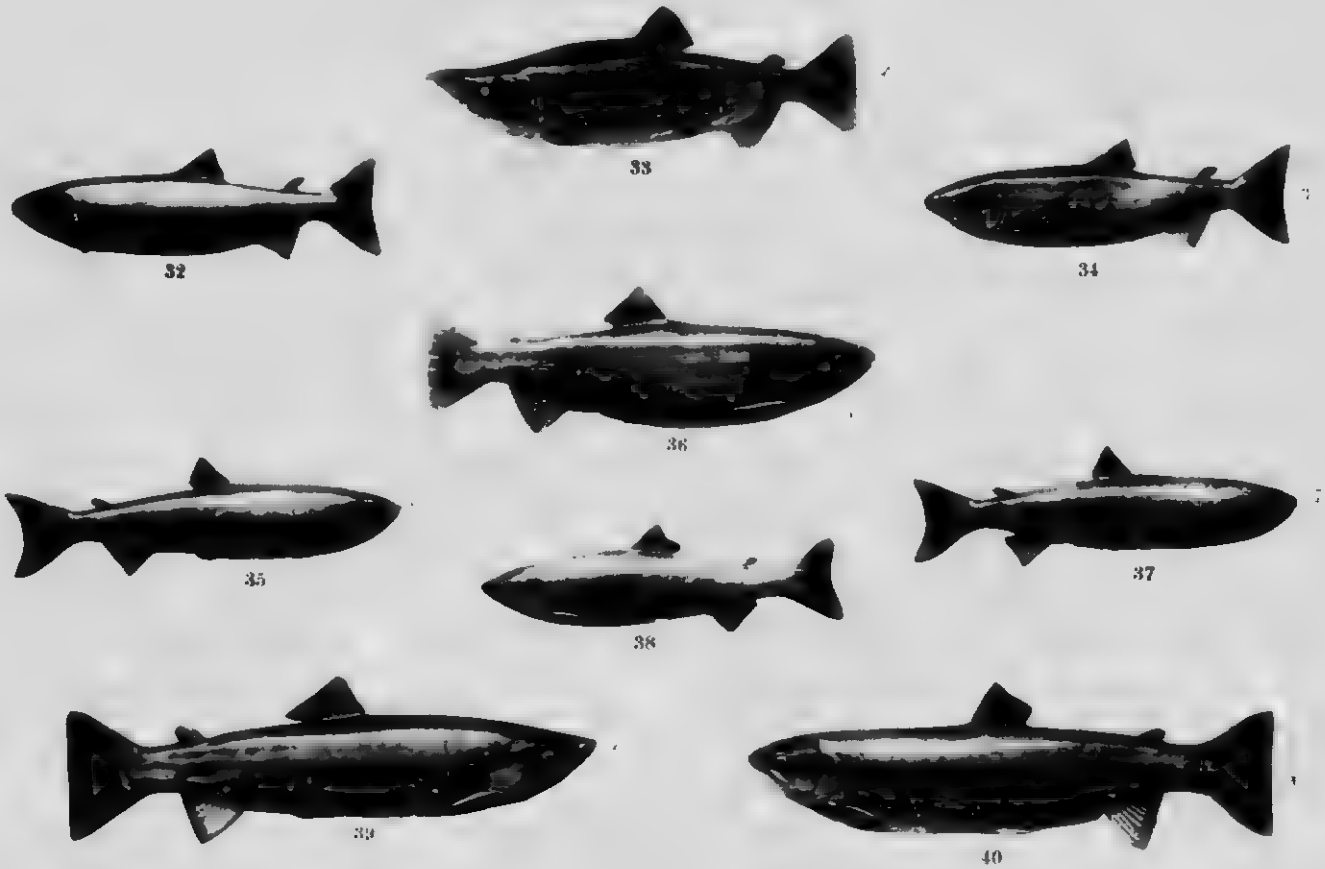
*"A doubtful species, perhaps identical with *Coregonus kennicotti*, or possibly with *Coregonus nelsonii*." Jordan and Evermann.

PLATE VI.

32 38 Oncorhynchus nerka (Sockeye Salmon)
(Showing seasonal characteristics)

39 40 Salmo rivularis (Steelhead Salmon)

Plat. VI



71. Coregonus clupeiformis Mitchill. (Plate VII, figures 55 and 56.)
Common Whitefish.
Mostly lacustrine.
Collectively records repute its distribution to be from Labrador and New Brunswick to the Prairie Provinces and northward,* abundant in the Great Lakes, especially in Lake Erie; its spawning beds being perhaps more especially on the Canadian side of the lake.

72. Coregonus nelsonii Bean.
Humpback Whitefish.
Lacustrine.
Recorded from Lake Bennett, British Columbia (Evermann and Goldsborough, 1907), and from Alaska.

73. Coregonus labradoricus Richardson.
Labrador Whitefish. Sault Whitefish.
Lacustrine and fluviatile.
Distributed from Labrador, Province of Quebec, and New Brunswick, to the Prairie Provinces, embracing the Great Lakes region, including Lake of the Woods; abundant at Sault Ste. Marie; in the United States extending from the "Great Lakes region to the lakes of the Adirondacks and White Mountains, and northeastward" (Jordan and Evermann).

74. Argyrosomus osmeriformis H. M. S.
Smelt-of-the-New-York-Lakes.
Lacustrine.
Provisionally included here: "has been recorded only from Seneca and Skaneateles lakes, New York, where it is known as smelt; it doubtless inhabits others of the deep-water lakes of northern New York" (Jordan and Evermann); and possibly may be found in Ontario waters.

75. Argyrosomus artedi Le Sueur. (Plate VII, figures 57 and 58).
Cisco; Lake Herring.
Lacustrine.
Ranges from Province of Quebec and State of Vermont, occurring in Lakes Champlain and Memphremagog, and in Thirty-one mile Lake, some 60 miles north of Ottawa (Shields, 1897) westward to Lake Superior; abundant in Lake Erie; extends northward to the Hudson Bay region and to Labrador.

76. Argyrosomus hoyi Gill.
Mooneye Cisco.
Lacustrine.
"Thus far known [1902] only from Lake Michigan and possibly from Lake Superior" (Jordan and Evermann); questionable in our waters.

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*"It is to be found throughout the Great Lakes region from Lake Champlain to Lake Superior, and possibly to Lake Winnipeg. It has been reported commercially from Lake of the Woods, Lake Winnipeg and Northwest Territory, but all references to its occurrence west of Lake Superior need verification. All specimens of so-called whitefish from Lake of the Woods which have been examined by any ichthyologist belong to a different species—the Labrador whitefish (*Coregonus labradoricus*), and this is doubtless the species which the Canadian Fish Commission reports call the 'whitefish' when referring to localities west of Lake Superior." Jordan and Evermann.

77. Argyrosomus pusillus Bean
Least Whitefish
Fluviatile.
Barter Island, off Alaska, near the mouth of the Mackenzie River (Scofield, 1899): occurs in the Yukon River and "practically all of Alaska except the south-eastern portion" (Jordan and Evermann): will perhaps be found in British Columbia.

78. Argyrosomus lucidus Richardson.
Great-Bear-Lake-Herring.
Lacustrine and fluviatile.
Mackenzie River and tributaries: Great Bear Lake (Richardson, 1836, as *Salmo* (*Coregonus*) *lucidus*): Great Bear Lake River (Gilbert, 1894, as *Coregonus lucidus*): Herschel Island (Scofield, 1899): Arctic Red River (Preble, 1903-4).

79. Argyrosomus laurettæ Bean.
Lauretta Cisco.
Fluviatile.
Yukon River northward to Point Barrow, Alaska: perhaps British Columbia.

80. Argyrosomus prognathus* H. M. Smith
Bloater: Long Jaw.
Lacustrine.
Basins of the Great Lakes, with the possible exception of Lake Erie

81. Argyrosomus nigripinnis Gill.
Blackfin: Bluefin.
Lacustrine.
Lake Michigan and certain lakes of Wisconsin and Minnesota also reported from Lake Superior.†

82. Argyrosomus tullibee Richardson.
Tullibee.
Lacustrine.
Occurs in Lakes Erie, Superior, and Michigan; and in Lake Onondaga, State of New York: also in Lake of the Woods, and in the Provinces of Manitoba and Saskatchewan—frequenting the Qu'Appelle Lakes near the middle of the chain: recorded from Pine Island Lake and from Albany River region (Richardson, 1836, as *Salmo* (*Coregonus*) *tullibee*).

83. Stenodus mackenzii Richardson.
Inconnu.
Fluviatile and lacustrine.
Mackenzie and Yukon Rivers and their tributary waters; also recorded from Salt River (Richardson, 1823, as *Salmo mackenzii*—the type), and from Great Slave Lake (Richardson, 1836): perhaps identical with *S. leucichthys* of Siberia.

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*"This species and *A. camerifornis* have been confounded under the name *Coregonus hoyi*, though neither much resembles the original of that name." Jordan and Evermann. *A. hoyi*, unless to be found in Lake Superior does not seem to belong to our waters; but is given provisionally in the Check List under number 76.

†"It has also been reported from Lake Superior, but all the specimens of so-called blackfin or bluefin that we have seen from that Lake are the long jaw" [*A. prognathus*]. Jordan and Evermann.

84. **Oncorhynchus gorbuscha** Walbaum. (Plate II, figures 8-13).
Humpback Salmon.
Anadromous.
British Columbia: both coasts of the Pacific and their slopes, ranging from California to Kamchatka, and extending northward.

85. **Oncorhynchus keta** Walbaum. (Plate III, figures 14-19).
Dog Salmon.
Anadromous.
British Columbia: both coasts of the Pacific and their slopes, ranging from California to Bering Straits, Kamchatka, and [illegible] far the most abundant species of salmon" in Japan (Jordan).

86. **Oncorhynchus tschawytscha** W[illegible] (Plate [illegible] figures 20-24 and 31).
Spring Salmon: Quinnat (King Sal[illegible]).
Anadromous.
British Columbia: both coasts of the Pacific and their slopes, ranging from California to Bering Straits and [illegible].

87. **Oncorhynchus kisutch** Walbaum. (Pl[illegible] figures 25-30).
Coho: Silver Salmon.
Anadromous.
British Columbia: both coasts of the Pacific and their slopes, ranging on the American side from California to Alaska, and on the Asiatic side southward to Japan.

88. **Oncorhynchus nerka** Walbaum. (Plate VI, figures 32-38).
Sockeye Salmon: Blue-back Salmon.
Anadromous.
British Columbia: both coasts of the Pacific and their slopes, ranging on the [illegible] from Oregon to Alaska; and on the Asiatic side southward to Japan, be[illegible] Lake Akan in northern Hokkaido (Jordan).

89. **Oncorhynchus kennerlyi** Suckley.
Kennerly's Salmon: Little Redfish.
Lacustrine and fluviatile, and perhaps anadromous.
Certain lakes of British Columbia, and the States of Washington, Oregon, and Idaho.

90. **Salmo salar** Linnæus. (Plate VII, figure 41).
Atlantic Salmon.
Anadromous.
Both coasts of the Atlantic and its affluents. Maritime Provinces, Gaspe Bay, St. Lawrence River and Gulf with their tributary waters, including La Riviere Jupiter, Anticosti Island (Schmitt, 1904); formerly Lake Ontario; recently (1905) one specimen found near South Bay, Manitoulin Island, Lake Huron; Newfoundland and Labrador; recorded from Hudson Bay (Pennant, 1788); northeastern States of North America, and the Delaware River; lakes and rivers of Greenland (Fabricius, 1780); seas and rivers of Europe, including Iceland, and entering the Baltic; southern limit of distribution in Europe, Galicia, Spain.

91. Salmo salar sebego Girard

Landlocked Salmon

Landlocked in lakes

Certain lakes in New Brunswick, such as Loch Lomond and Seiff and Musquash Lakes; and of the States of Maine and New Hampshire; now more widely distributed by having been introduced into lakes of other localities

92. Salmo salar ouananiche McCarthy

Ouananiche

Landlocked in lakes

Saguenay River and Lake St. John regions, and lakes and rivers northward to the Ungava region, and eastward to Labrador; occurs also in lakes of Newfoundland such as Red Indian and Terra Nova Lakes, and lakes at the head of Gambo River.

93. Salmo clarkii Richardson. (Plat. VII, figures 42 and 43).

Cutthroat Trout.

Lacustrine and fluviatile, and coastwise; possibly entering the sea

Southern Alberta and British Columbia; ranging from California perhaps as far north as Alaska.

94. Salmo rivularis Ayres. (Plate VI, figures 39 and 40)

Steelhead

Anadromous

British Columbia to California and eastward to the Mountains extending as far north as Skagway, Alaska; introduced into Lake Superior by the United States Fish Commission, and since found in waters of Ontario

Salmo rivularis kamloops Jordan

Kamloops Trout.

Lacustrine

Kamloops, Kootenay, Okanagan, and other lakes in British Columbia, certain lakes tributary to the Fraser and upper Columbia Rivers

96. Salmo irideus* Gibbons (Plate VII, figures 44 and 45).

Rainbow Trout.

Fluviatile, and perhaps in a measure anadromous

Ranges, under a number of varieties, from State of Washington to California; introduced into certain eastern waters, including Lake Superior, Nova Scotia, and Newfoundland;† records for British Columbia do not appear to be authentically supported

*It is affirmed by some that the rainbow trout is only an earlier stage, in the course of development, of the steelhead, but as this matter appears to be here open to question it is given provisionally in the check-list as constituting in itself a valid species.

†The California Rainbow Trout has proved its great adaptability to the environment of Newfoundland waters. Report of the Game and Inland Fisheries Board, Newfoundland for the year 1910

97. Salmo trutta levenensis Walker.

Loch Leven Trout.

Lacustrine.

Loch Leven, Fifeshire, and other Scottish lochs; lochs in north of England (Jordan); introduced into lakes of Newfoundland; and by the United States Fish Commission into Shoshone Lake, Yellowstone National Park and elsewhere.

98. Cristivomer namaycush* Walbaum. (Plate VII, figures 46 and 47).

Salmon Trout; Great Lake Trout.

Lacustrine and fluviatile.

Widely distributed from Labrador, the Maritime Provinces, and the State of Maine, to Vancouver Island, Alaska, and the Mackenzie River, northward to the Arctic Circle.

99. Cristivomer namaycush siscowet Agassiz.

Siscowet.

Lacustrine.

Lake Superior; occasional in lakes Huron and Erie.

100. Salvelinus fontinalis† Mitchill. (Plate VII, figures 48-50).

Speckled Trout; Brook Trout.

Fluviatile, lacustrine, and enters (as a sea-run variety *oquassa aletag*) the sea.

Widely distributed in North America, presumably from the Arctic regions (but "the northern limits of its range being as yet not well ascertained" Jordan, 1905) southward to Georgia and Alabama and from Newfoundland to Saskatchewan

101. Salvelinus parkei Suckley.

Dolly Varden Trout.

Lacustrine and fluviatile and entering the sea

Ranges from California, embracing British Columbia, northward to Aleutian Islands, and Herschel Island, Beaufort Sea, Arctic Ocean (Scott, 1890) and extending westward to the South Saskatchewan and Montana.

102. Salvelinus alpinus alipes‡ Richardson.

Long-finned Charr.

Lacustrine and fluviatile.

Arctic regions lakes in Regent's Inlet, Boothia Felix (Richardson, 1835-6, as *Salmo alipes* and *Salmo nitidus*); lakes and rivers of Greenland (Fabricius, 1780, as *Salmo alpinus*).

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*This species is subject to great variation and although all the varieties bear the specific name of *namaycush* there is considerable reason for the popular distinctions such as salmon trout, gray trout, and Mackinaw trout. Structurally, however, it has not appeared to ichthyologists that there are sufficient distinctions to warrant the separation of varieties into subspecies, except in the following

†This species varies greatly in size and coloration according to the character of the waters in which it occurs. Nipigon Lake, Ontario, is noted for its large sized individuals.

‡This and the two following are regarded as varieties of the European charr (*S. alpinus*).

103. Salvelinus alpinus stagnalis Fabricius.
Greenland Charr.
Lacustrine and fluviatile.
Arctic regions: Regent's Inlet and rivers of Boothia Felix (Richardson, 1836, as *Salmo rossii*): Coppermine River (Richardson, 1823 and 1836 as *Salmo hearnii*): streams and ponds of Greenland: also recorded from Labrador.*

104. Salvelinus alpinus arcturus Günther.
Arctic Charr.
Lacustrine.
Victoria Lake, Flœberg Beach, Arctic America, Lat. 82°, 34′ (Günther, 1877, as *Salmo arcturus*).

105. Salvelinus oquassa naresi Gunther.
Nares Charr.
Lacustrine.
Arctic America: Discovery Bay and Cumberland Gulf.

106. Salvelinus marstonii† Garman. (Plate VII, figures 51 and 52).
Marston Trout: Red Canadian Trout.
Lacustrine.
Recorded from the following lakes, among others in the Province of Quebec: Lac de Marbre, near Ottawa: lakes of the Laurentides Club in the Lake St. John region; Lac a Cassette, Rimouski County; and Lake Saccacomi and the Red Lakes, Maskinonge County: the above records probably right at the southern limits of its distribution, and that the centre of its distribution is much further north.

107. Thymallus signifer Richardson
Arctic Grayling.
Lacustrine and fluviatile.
Occurs in Lakes Bennett and Atkins, Forty-mile Creek, and other waters of the northern part of British Columbia: recorded from Great Slave Lake, Great Bear Lake, and Winter River regions (Richardson, 1823 and 1836): Mackenzie River and Alaska to the Arctic Ocean: Churchill River and tributaries, Hudson Bay.

108. Thymallus tricolor Cope.
Michigan Grayling.
Fluviatile.
Streams of the State of Michigan, and possibly to be found on the Ontario side of the St. Marys River: said to have been brought by Milbert from Lake Ontario (Cuvier and Valenciennes, 1848, as *T. ontariensis*).

*"Specimens from Greenland and Labrador in the U.S. National Museum have been identified and recorded as *Salmo stagnalis*. It is doubtful if this is a correct identification." Kendall. Various other records from Labrador.

†Here assigned specific instead of sub-specific rank. "A specimen of *Salmo* [*Salvelinus*] *marstoni* sent me some days ago indicates a more distinct species than was at first supposed. . . . Though quite distinct, the species is nearer *S. oquassa* than any other." Garman. As a sub-species it would stand as:—*Salvelinus oquassa marstoni*.

109. **Thymallus tricolor montanus** Milner.
Montana Grayling.
Fluviatile.
Southern Alberta?,* certain rivers of Montana, and Yellowstone National Park

110. **Mallotus villosus** Muller
Capelin.
Marine: sometimes ascending streams
Ranges from the Arctic regions southward, on the Pacific coasts to British Columbia and Kamchatka, and on the Atlantic coast of North America, embracing Greenland Labrador, Newfoundland, Gulf of St. Lawrence, Maritime Provinces, and New England States, to Cape Cod.

111. **Thaleichthys pacificus** Richardson
Oolachan: Candlefish.
Anadromous in a measure.
British Columbia, ascending the Fraser and Naas Rivers: ranging from Oregon northward to Alaska.

112. **Osmerus thaleichthys** Ayres.
Pacific Smelt.
Marine.
British Columbia: ranges from California to Alaska.

113. **Osmerus mordax** Mitchill. (Plate VII, figures 53 and 54).
American Smelt.
Marine, fluviatile, and landlocked
Atlantic coast of North America from Labrador to Virginia lakes in Maritime Provinces, Province of Quebec, and New England States: Lac-des-Isles, Gatineau District, some sixty miles north of Ottawa.†

114. **Osmerus dentex** Steindachner
Rainbow Herring.
Marine and fluviatile.
Naas River, British Columbia: Arctic Red River (Preble, 1903-4): Pacific coast from Alaska, embracing both coasts of Bering Sea, and extending southwestward to northern China

115. **Mesopus pretiosus** Girard.
Surf Smelt.
Marine: spawns in the surf
British Columbia, extending southward to California.

*A little salmonoid in rivers of southern Alberta, locally called the grayling, may be this subspecies

†Whilst engaged in some fisheries matters in the month of May, 1903, I found some specimens of the American Smelt floating dead on the surface of the water of Lac des Isles, in the Gatineau district, P.Q. It is known that this species of fish exists land-locked in fresh water lakes in New Brunswick, Nova Scotia and in the state of Maine but its occurrence in a lake so far away from the sea as Lac des Isles, is perhaps worthy of mention. The specimens are dwarfed, otherwise the external characters appear to agree with the ordinary *Osmerus m*

116. Argentina silus Arcanius.
Argentine; Siel Smelt
Marine
Grand Banks, Newfoundland, a specimen from the stomach of a codling (*Phycis tenuis*) off Sable Island, Nova Scotia (Goode and Bean, 1878, as *A. sphinxum*); occasional on the coast of Maine, and off the coasts of northern Europe.

117. Bathylagus pacificus Gilbert.
Deep-sea Smelt
Bathybial.
Coast of State of Washington: "two specimens taken in 685 and 877 fathoms" (Jordan and Evermann), given here as likely to occur in British Columbian waters

118. Chauliodus macouni Bean.
Viperfish.
Bathybial.
Off Queen Charlotte Islands, British Columbia (the type in 876 fathoms); extending southward to coast of California.

119. Chauliodus sloanei Bloch and Schneider.
Viperfish.
Bathybial.
Atlantic Ocean and Mediterranean; a specimen found in the stomach of a cod-fish at George's Banks (lat. 42° 08′ N., long 65° 35′ W.) in 185 fathoms.

120. Sternoptyx diaphana Hermann
Bathybial and pelagic; "rising toward the surface at night or in stormy weather.
Grand Banks, Newfoundland, southward to Santa Cruz Island, and recorded from Jamaica (Hermann, 1771); also off the Hawaiian and Japanese Islands.

121. Argyropelecus olfersi Cuvier
Bathybial and pelagic; "rising toward the surface at night or in stormy weather
Grand Banks, Newfoundland, open Atlantic, extending to the coasts of Brazil, Cape of Good Hope, and Norway

122. Stomias ferox Reinhardt
Bathybial.
East Banquereau, ranging from Greenland southward to the Bahama Channel

123. Malacosteus niger Ayres
Bathybial.
A specimen collected on the northeastern edge of George's Bank by the schooner *Alice G. Wanson* in 125 fathoms; Gulf Stream southward to the Barbadoes

124. Ictalurus punctatus Rafinesque
Channel Catfish
Abounding especially in river channels
Rivers of Great Lakes region westward to Manitoba; Mississippi valley, and streams tributary to the Gulf of Mexico

PLATE VII

41 **Salmo** salar (Atlantic **Salmon**)

42 43 **Salmo** clarkii (Cutthroat **Trout**)

44 45 **Salmo** irideus (Rainbow Trout)

46 47. **Cristivomer** namaycush (**Salmon** Trout

48 50. **Salvelinus** fontinalis (Speckled **Trout**)

51 52 **Salvelinus** marstoni (Red **Canadian** Trout

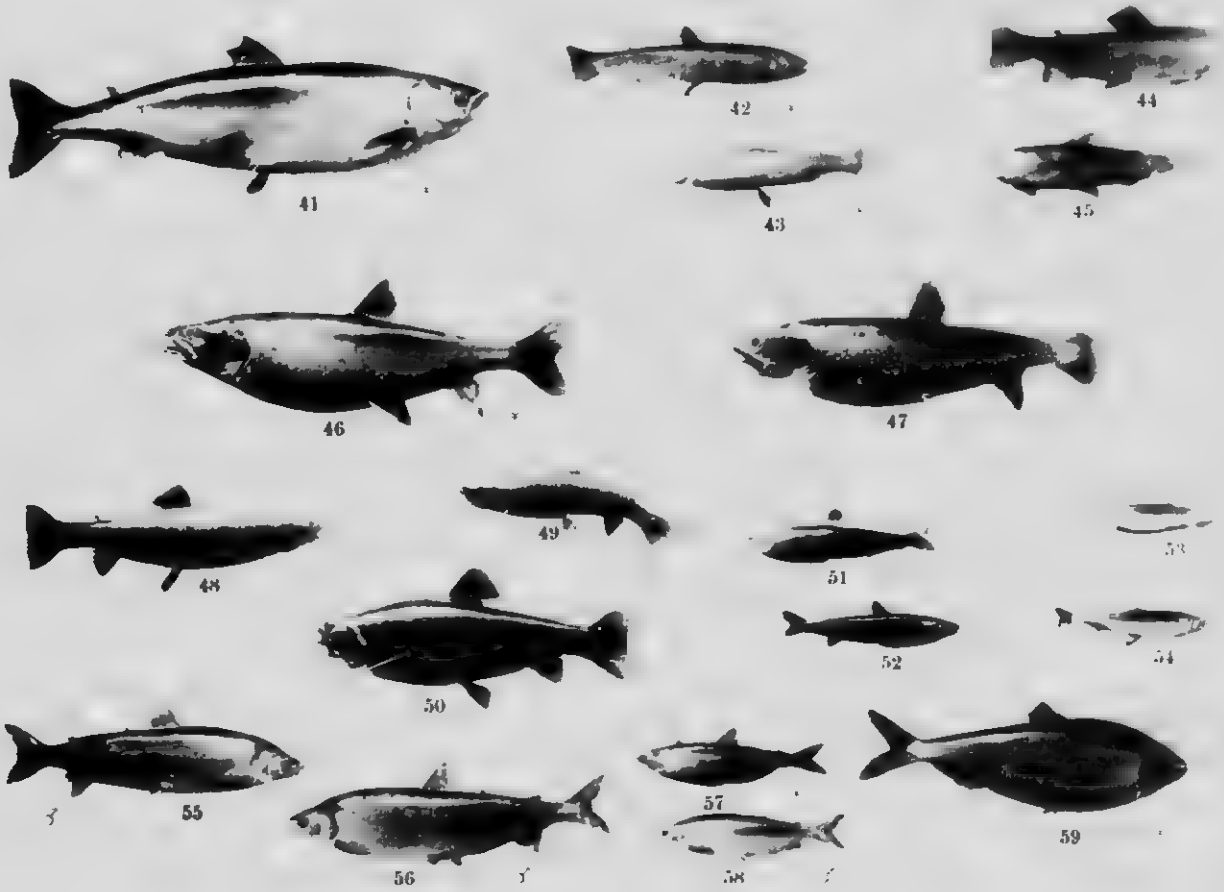
53 54 **Osmerus** mordax (American Smelt

55 56 **Coregonus** clupeiformis (Common Whitefish)

57 58 Argyrosomus artedi (Cisco or Lake Herring)

59 Acipenser [illegible] (Sturgeon)

Plate VII



125. **Ameiurus lacustris** Walbaum.
Lake Catfish.
Lacustrine and fluviatile.
St. Lawrence river and tributaries, and Great Lakes region westward to the Prairie Provinces; Hudson Bay (Pennant, 1788, as the mathemeg; and Walbaum, 1792, as *Gadus lacustris*); in the United States, ranging from the Great Lakes possibly to the Mississippi valley, but the limits of its southern habitat uncertain.*

126. **Ameiurus natalis** Le Sueur.
Yellow Catfish.
Lacustrine and fluviatile.
Great Lakes region; recorded from Sugarbush, Bevin, and Bark Lakes, Province of Quebec (D'Urban, 1859, as *Pimelodus canosus*); extends southward to the southern United States.

127. **Ameiurus vulgaris** Thompson.
Long-jawed Catfish.
Lacustrine and fluviatile.
Lake Champlain and Provinces of Ontario and Manitoba; ranges in the United States from Vermont westward to Illinois and Minnesota; "most abundant from Lake Erie." (Nash).

128. **Ameiurus nebulosus** Le Sueur. (Plate VIII, figures 68 and 69).
Common Catfish; Horned Pout.
Lacustrine and fluviatile.
Ranges in Canada from the Maritime Provinces to Manitoba, including the St. Lawrence River and Great Lakes region; recorded from the Saskatchewan River region (Richardson, 1823, as *Silurus felis*); in the United States extending from Maine westward to North Dakota, and southward to the southern States; has been introduced into rivers of California, and into lakes of southern Oregon.

129. **Ameiurus melas** Rafinesque.
Black Bullhead.
Lacustrine and fluviatile.
Extends from upper St. Lawrence River and State of New York, westward to Nebraska (Gill, 1862, as *Amiurus obscus*) and Kansas (Gilbert, 1884, as *Amiurus craqini*); recorded from Medina River, Texas (Cope, 1880, as *Amiurus brachycanthus*); presumably Ontario.†

130. **Noturus flavus** Rafinesque.
Stone Catfish.
Lacustrine and fluviatile.
Ottawa River;‡ Lake Champlain; Great Lakes region, extending westward to Montana and Wyoming and southward to Texas.

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*"It is not certain just what its range really is. It is probably chiefly or even entirely confined to the Great Lakes and northward, including possible the upper Mississippi." Jordan and Evermann.

†"I believe that many years ago I took it in the county of Lincoln, Ontario." Nash.

‡A very small specimen some 1¾ inches long passed from the Ottawa River through the water taps of the Ottawa fish hatchery in February, 1909.

131. Schilbeodes gyrinus Mitchill.
Tadpole Stone Cat; Mad Tom.
Fluviatile.
Great Lakes region, extending from the Hudson River westward to the Mississippi valley; and probably to be found in Ontario.

132. Ictiobus cyprinella Cuvier and Valenciennes.
Common Buffalo Fish.
Lacustrine and fluviatile.
Manitoba: Qu'Appelle valley, Saskatchewan, at the head of the chain of lakes; and Mississippi valley.

133. Ictiobus bubalus Rafinesque.
Small-mouth Buffalo Fish.
Fluviatile and lacustrine.
Manitoba, and Mississippi valley and basin.

134. Carpiodes thompsoni Agassiz.
Lake Carp Sucker.
Lacustrine and fluviatile.
Lake Champlain, upper St. Lawrence River, and Great Lakes region, including Lake of the Woods.

135. Carpiodes velifer Rafinesque.
Quillback.
Fluviatile.
Prairie Provinces, Mississippi valley, and upper Missouri River, extending southward to the Rio Grande.

136. Pantosteus jordani Evermann.
Mountain Sucker.
Frequents clear streams.
Upper Missouri valley, streams of the Black Hills, South Dakota, localities in Montana and Idaho, and Columbia River basin; may be found in southern Alberta or perhaps in British Columbia.

137. Catostomus griseus Girard.
Gray Sucker.
Fluviatile.
Alberta and Saskatchewan; upper Missouri basin and Platte and Yellowstone Rivers.

138. Catostomus catostomus Forster.
Northern Sucker.
Lacustrine and fluviatile.
Nearly cosmopolitan in the Dominion; ranging from Labrador and New Brunswick to British Columbia, and from the eastern to the western United States, extending southward at least to Latitude 40° N., but has been obtained in West Virginia; and occurs also in Alaska; recorded from Hudson Bay (Forster, 1773, and Pennant, 1788, as *Cyprinus catostomus*), and from "stream near Great Bear Lake and stream near Fort Good Hope" (Preble, 1903-4.)

139. Catostomus macrocheilus Girard.
Columbia River Sucker.
Lacustrine and fluviatile.
Kootenay Lakes; Shushwap Lake, Sicamous; and Thompson River, Kamloops; British Columbia: Columbia River basin, and rivers and lakes of the States of Oregon, Washington, Idaho, and Montana.

140. Catostomus commersonii Lacépède. (Plate VIII, figures 70 and 71).
Common White Sucker.
Lacustrine and fluviatile.
Very cosmopolitan in British North America, from the Maritime Provinces, Gaspé District, and Labrador, to Alberta; in the United States extending from the eastern States westward to Montana and Colorado and southward to Georgia; recorded from Hudson Bay (Pennant, 1788, as the Namapeth)

141. Catostomus nigricans Le Sueur
Stone Roller; Black Sucker
Lacustrine and fluviatile.
Great Lakes region, including Lake of the Woods; in the United States extending from the State of New York to Minnesota and Kansas westward, and to the Carolinas and Arkansas southward

142. Erimyzon sucetta oblongus Mitchill.
Chub Sucker.
Lacustrine and fluviatile.
Mentioned in "List of the Fishes of Nova Scotia" (Jones, 1879); tributaries of lower St. John River, New Brunswick* (Cox, 1895, after Adams); St. Lawrence River and tributaries (Fortin, 1865, as *Catostomus tuberculatus*), and Great Lakes region; in the United States extending from Maine westward to the Dakotas, and southward to Virginia and Oklahoma; "gradually passing southward into the typical *sucetta*" (Jordan and Evermann.)

143. Minytrema melanops Rafinesque.
Spotted Sucker.
Lacustrine and fluviatile.
Great Lakes region; southeastward to North Carolina and southwestward to Texas; given here owing to its occurrence in the Great Lakes.

144. Moxostoma anisurum Rafinesque.
White-nosed Red Horse.
Lacustrine and fluviatile.
St. Lawrence River; Great Lakes region, including Lake of the Woods; and Manitoba Youghiogheny River, Pennsylvania (Cope 1870, as *Ptychostomus relatus*); Ohio River (Rafinesque, 1820, as *Catostomus anisurus*).

*Dr. Cox considers this species to be extinct in New Brunswick, not having seen it for some thirty years. He regards the green pike (*Lucius reticulatus*) as being the cause of its disappearance.

145. Moxostoma aureolum Le Sueur. (Plate VIII, figures 72 and 73).
Common Red Horse.
Lacustrine and fluviatile.
St. Lawrence River and Great Lakes region, including Lake of the Woods and Manitoba; abundant west of the Alleghaney mountains to Nebraska; extending southward to Arkansas and Georgia.

146. Moxostoma macrolepidotum Le Sueur.
Large-scaled Red Horse.
Lacustrine and fluviatile.
Pine Island Lake and Albany River (Gunther, 1868, as *Catostomus macrolepidotus*); Chesapeake and Delaware Bays southward to North Carolina.

147. Moxostoma lesueuri Richardson
Northern Red Horse.
Lacustrine and fluviatile.
Manitoba; Saskatchewan River and northward of Great Slave Lake, Pine Island Lake, and Albany River district (Richardson, 1823 and 1836, under *Catostomus lesueuri* and other synonyms).

148. Moxostoma breviceps Cope.
Short-headed Mullet.
Lacustrine and fluviatile.
Great Lakes region* and Ohio valley; Youghiogheny River, Pennsylvania (Cope, 1870, as *Ptychostomus breviceps*).

149. Placopharynx duquesnii Le Sueur.
Fluviatile.
Detroit River system (at least on the Michigan side); extending southward to Tennessee, Arkansas, and Georgia; "it is probably most abundant in the French Broad River and in the Ozark region" (Jordan and Evermann, 1902).

150. Campostoma anomalum Rafinesque.
Stone Roller; Stone Lugger.
Fluviatile, ascending small brooks to spawn.
Detroit River, doubtless Lake Erie, and likely Niagara River;† State of New York, extending westward to Wyoming and southward to Texas.

151. Acrocheilus alutaceus Agassiz and Pickering.
Chisel-mouth.
Fluviatile.
Possibly British Columbia; Lower Columbia River and tributaries.

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*"This species seems to be confined to Lake Erie, so far as our Province [Ontario] is concerned." Nash.

†"Should and probably does occur in streams flowing into Niagara River and into Lake Erie." Nash.

152. **Chrosomus erythrogaster** Rafinesque.
Red-bellied Dace.
Fluviatile.
Provinces of Ontario, Quebec, and New Brunswick, in the United States extending from Maine westward to Iowa and southward to northern Alabama.

153. **Hybognathus nuchalis** Agassiz.
Silver Minnow.
Fluviatile.
Lake Ontario region; tributary streams of the United States from the Delaware and Neuse rivers westward to the upper Missouri and southward to Texas and Georgia; embraced under a number of sub-species and varieties.

154. **Hybognathus argyritis** Girard.
White Minnow.
Fluviatile.
Manitoba and upper Missouri region.

155. **Pimephales promelas** Rafinesque.
Blackhead Minnow; Bull Minnow.
Lacustrine and fluviatile.
Extends from Lake Champlain to the Prairie Provinces, ranging southward to Kentucky and the Rio Grande.

156. **Pimephales notatus** Rafinesque.
Blunt-nosed Minnow.
Fluviatile.
Province of Quebec to Delaware; St. Lawrence River and presumably Ontario; "generally very abundant in small streams west of the Alleghanies" (Jordan and Evermann); extending westward to the Dakotas and southward to Alabama and Arkansas, may be found in Manitoba.

157. **Mylocheilus caurinus** Richardson.
Columbia River Chub.
Fluviatile, and marine in that it enters the sea.
British Columbia, including Vancouver Island; extends south to Oregon.

158. **Semotilus corporalis** Mitchill. (Plate VIII, figures 74 and 75).
Silver Chub; Fall-fish.
Lacustrine and fluviatile.
Widely distributed in the rivers and streams of the Maritime Provinces; St. Lawrence River system and streams and ponds of Ontario; abundant also in northern United States east of the Alleghanies

159. **Semotilus atromaculatus** Mitchill.
Creek Chub; Horned Dace.
Fluviatile.
Maritime Provinces and Provinces of Ontario and Quebec; St. Lawrence River and its tributaries, in the United States extending from Maine westward to Wyoming and southward to Alabama and Georgia.

160. Ptychocheilus oregonensis Richardson.
Squawfish.
Fluviatile.
British Columbia, including Vancouver Island: States of Washington and Oregon westward to Montana.

161. Leuciscus balteatus Richardson.
Columbia River Minnow.
Fluviatile.
British Columbia: Columbia river and streams of Puget Sound: presumably westward to Montana (Evermann, 1891, as *L. gilli*).*

162. Leuciscus elongatus Kirtland.
Red-sided Shiner.
Lacustrine and fluviatile.
"Very abundant in most streams in southern and central Ontario" (Nash, 1908): in the United States "Great Lakes and upper Mississippi Valley, chiefly from Pennsylvania to Minnesota" (Jordan and Evermann).

163. Leuciscus nachtriebi Cox
Nachtrieb Dace.
Lacustrine.
Certain lakes of northern Minnesota: given here as likely to occur in Lake of the Woods region.

164. Leuciscus neogæus Cope.
Lacustrine and fluviatile.
Provinces of New Brunswick and Quebec, and presumably Ontario: also locally known from Michigan to South Dakota.

165. Opsopœodus emiliæ Hay.
Fluviatile.
Streams tributary to Lake Erie: also distributed from southern Indiana southward to Georgia: given here owing to its occurrence in Lake Erie waters.

166. Abramis crysoleucas Mitchill. (Plate VIII, Figures 78 and 79).
Bream: Roach: Golden Shiner.
Lacustrine and fluviatile—abounding in bayous and weedy ponds.
Maritime Provinces, including Prince Edward Island: in the United States from the eastern States westward to Dakota and southward to Texas.

167. Cliola vigilax Baird and Girard.
Bullhead Minnow.
Fluviatile.
Detroit, Michigan (Cope, 1866, as *Hybopsis tuditanus*), and therefore given here owing to its occurrence so close to our border: extends from Ohio westward to Iowa and southward to Texas and Georgia.

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*"Apparently not distinct from *L. balteatus*." Jordan and Evermann.

169. Notropis jordani Eigenmann and Eigenmann.
Jordan's Shiner.
Fluviatile.
South Saskatchewan River, Medicine Hat, Alberta.

169. Notropis cayuga Meek.
Cayuga Shiner.
Lacustrine and fluviatile.
Qu'Appelle Valley, Saskatchewan: extends from northern New York State westward to South Dakota and Nebraska and southward to Arkansas: may be found in Ontario and Manitoba. *

170. Notropis fretensis* Cope.
Fluviatile.
Detroit River, Michigan (Cope, 1866, as *Hybopsis fretensis*) therefore given here as being so near our border.

171. Notropis muskoka Meek.
Muskoka Shiner.
Lacustrine and fluviatile.
Gull Lake and adjacent waters, Muskoka, Ontario.

172. Notropis heterodon Cope.
Blackchin Minnow.
Fluviatile.
"Ranges from the St. Lawrence River westward" (Nash, 1908): in the United States extending, probably under a number of varieties,† from the State of New York to Michigan and Kansas.

173. Notropis blennius Girard.
Straw-coloured Minnow.
Lacustrine and fluviatile.
Upper St. Lawrence River and Great Lakes region, including Lake of the Woods, to Manitoba: in the United States, under several varieties, extends from Ohio to Dakota and southward to Texas.

174. Notropis volucellus Cope.
Fluviatile.
Detroit River, Michigan (Cope, 1864, as *Hybognathus volucellus*) therefore given here as being so near our border: known from northern Indiana, Michigan, and Wisconsin.

175. Notropis scylla Cope.
Fluviatile: "sandy streams of the plains."
"Illinois River to western Kansas and Montana" (Jordan and Evermann): given here as likely to occur in the Prairie Provinces.

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*"A doubtful species, perhaps identical with *Notropis cayuga*." Jordan and Evermann.

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†"*Notropis heterodon* is apparently subject to large variations." Jordan and Evermann.

176. Notropis hudsonius De Witt Clinton.
Spawn-eater; Spot-tail Minnow.
Lacustrine and fluviatile.
Great Lakes; State of New York westward to the Dakotas, and southward to South Carolina.

177. Notropis hudsonius selene Jordan.
Spawn-eater.
Lacustrine and fluviatile.
Lake Superior; Lake of the Woods; Prairie Provinces; and Hayes River, 15 miles above York Factory, Hudson Bay region (Preble, 1900).

178. Notropis whipplii Girard
Silverfin; Satin-fin Minnow.
Lacustrine and fluviatile.
St. Lawrence River and Great Lakes region; in the United States from central New York State westward to Minnesota and southward to Alabama and Arkansas.

179 Notropis cornutus Mitchill.
Dace; Redfin.
Fluviatile.
Widely distributed in Canada from New Brunswick and Province of Quebec to Manitoba; will probably be found in the Prairie Provinces; in the United States "entire region east of the Rocky Mountains excepting the south Atlantic States and Texas; its varieties are great, some of them appearing like distinct species" (Jordan and Evermann).

180. Notropis jejunus Forbes.
Poor Minnow.
Lacustrine and fluviatile.
Lake of the Woods and Prairie Provinces extending in the United States to Kansas and Pennsylvania.

181. Notropis scopifer Eigenmann and Eigenmann.
Fluviatile.
The three Prairie Provinces, viz: Manitoba, Saskatchewan, and Alberta.

182. Notropis atherinoides Rafinesque.
Great Minnow.
Lacustrine and fluviatile.
St. Lawrence River and Great Lakes region; Lake of the Woods; Prairie Provinces; and Ohio and Mississippi Valleys.

183. Notropis rubrifrons Cope.
Rosy-front Minnow.
Lacustrine and fluviatile.
Recorded from the St. Lawrence River and Lake of the Woods; in the United States extending from the State of New York westward to southern Michigan and southward to Kansas.

PLATE VIII.

60-61 Hyodon tergisus (Mooneye)

62-63 Clupea harengus (Common Herring)

64-65 Clupea pallasii (California Herring)

66-67 Brevoortia tyrannus (Menhaden)

68-69 Ameiurus nebulosus (Common Catfish)

70-71 Catostomus commersonii (Common White Sucker)

72-73 Moxostoma aureolum (Common Red Horse)

74-75 Semotilus corporalis (Silver Chub) or Fallfish

76-77 Cyprinus carpio (German Carp)

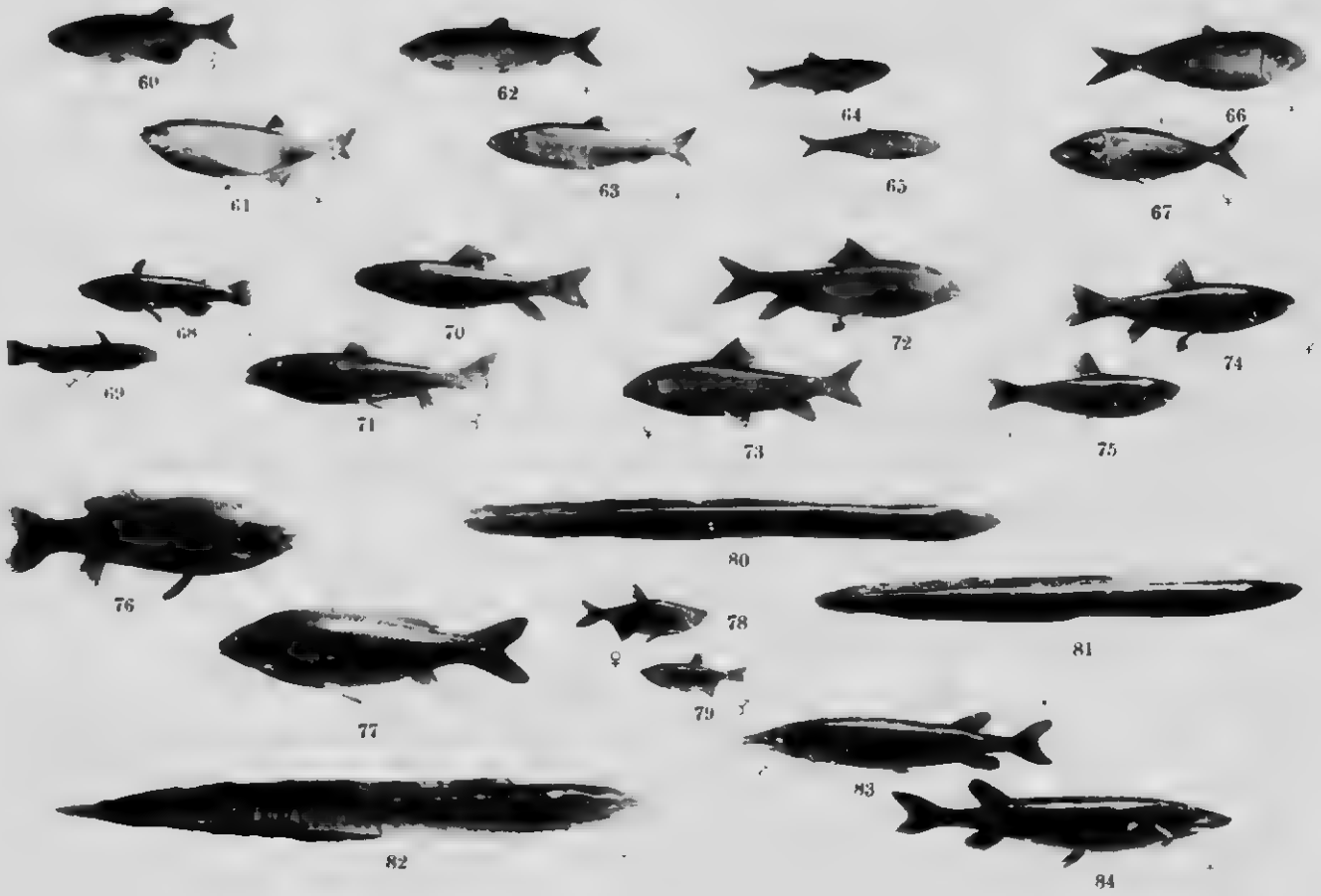
78-79 Abramis crysoleucas (Bream or Roach)

80-81. Anguilla chrysypa (American Eel)

82. Leptocephalus conger (Conger Eel.

83-84. Lucius reticulatus (Green Pike)

Plate VIII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184. Notropis umbratilis Girard

Redfin Minnow.

Fluviatile and lacustrine.

Western New York State westward to Minnesota and southward to North Carolina and Alabama, given here as likely to occur in western Ontario; occurs under numerous sub-species and varieties in many of the States of North America.

185. Rhinichthys cataractæ Cuvier and Valenciennes.

Long-nosed Dace.

Fluviatile: "frequenting clear and boisterous streams and rock pools."

Extending in Canada from New Brunswick and Province of Quebec to Lake Superior: "not uncommon at Sault Ste. Marie" (Nash, 1908); in the United States from the New England States westward to Wisconsin and southward to Virginia.

186. Rhinichthys cataractæ dulcis Girard.

Long-nosed Dace.

Fluviatile.

Provinces of Saskatchewan and Alberta; Columbia River basin: "Rocky Mountain region on both sides of the divide" (Jordan and Evermann); headwaters of numerous rivers in western States, including tributaries of Great Salt Lake.

187. Rhinichthys atronasus Mitchill.

Black-nosed Dace.

Fluviatile: "clear brooks and mountain streams."

Extending from the Maritime Provinces and Province of Quebec to the Great Lakes region in the United States; extending from the New England States westward to Minnesota and southward to Virginia and northern Alabama.

188. Agosia nubila Girard.

Dusky Minnow.

Fluviatile.

"Basin of Columbia River from western Idaho below the Shoshone Falls of Snake River to the coast, and in coastwise streams from Washington southward into Oregon" (Jordan and Evermann); given here as likely to occur in British Columbia.

189. Agosia umatilla Gilbert and Evermann.

Idaho Minnow.

Fluviatile.

"Known from the Columbia River at Umatilla and Payette River at Payette, Idaho" (Jordan and Evermann); given here as likely to occur in British Columbia.

190. Agosia falcata Eigenmann and Eigenmann.

Falcate Minnow.

Lacustrine and fluviatile.

Recorded from Shushwap Lake, Sicamous, British Columbia; Columbia River basin and Idaho.

191. Hybopsis dissimilis Kirtland.
Spotted Shiner.
Lacustrine and fluviatile.
Great Lakes region (at least Lake Erie); extending westward to Iowa and southward to the head waters of the Tennessee, and Arkansas.

192. Hybopsis amblops Rafinesque.
Silver Chub.
Fluviatile.
State of New York westward to Iowa and southward to Alabama; probably occurs in Canada.

193. Hybopsis storerianus Kirtland.
Lake Minnow.
Lacustrine and fluviatile.
Lakes Ontario and Erie, and Manitoba; in the United States extends westward to eastern Wyoming and southward to Arkansas

194. Couesius plumbeus Agassiz.
Lake Chub.
Lacustrine and fluviatile.
Ranges from Maritime Provinces and Province of Quebec to Lake Superior; recorded from Grant or St. Croix Lake, Mackenzie River region (Preble, 1903-4).

195. Couesius dissimilis* Girard.
Fluviatile
Provinces of Saskatchewan and Alberta, and Montana.

196. Couesius greeni Jordan.
Green's Chub.
Lacustrine and fluviatile.
British Columbia, and Lake Pend d'Oreille, Idaho.

197. Platygobio gracilis Richardson
Flat-headed Chub.
Fluviatile.
Prairie Provinces; Athabasca and Mackenzie Rivers (Preble, 1903-4); Missouri and Yellowstone Rivers to the Rocky Mountains; southward to Kansas.

198. Exoglossum maxillingua Le Sueur.
Cutlip Minnow.
Lacustrine and fluviatile.
Lake Champlain, St. Lawrence River, Lake Ontario, and State of New York, southward to Virginia.

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*"Very close to *C. plumbeus*, the only important difference being in the form of the dorsal fin; probably a variety of *C. plumbeus*." Jordan and Evermann. According to Dr. Cox many authorities regard *C. dissimilis* and *C. greeni* as not specifically different from *C. plumbeus*.

199. Cyprinus carpio Linnæus. (Plate VIII, figures 76 and 77).
German Carp.
Lacustrine and fluviatile.
Native to Asia, but introduced into Europe long ago; and of late years into North America; has made its way from the United States into the Bay of Quinte and other Canadian waters, being common throughout the Detroit River.

200. Carassius auratus Linnæus.
Goldfish.
Lacustrine and fluviatile.
Native to Japan and China, but introduced into waters of the United States, and well nigh cosmopolitan as an introduced fresh water pond and aquarium fish, wherein it breeds freely—sometimes even in the latter.

201. Anguilla chrysypa Rafinesque. (Plate VIII, figures 80 and 81).
American Eel.
Lacustrine, fluviatile, and catadromous: alleged to move sometimes through damp grass over land to adjacent waters.
Widely distributed in British North America from Newfoundland and Labrador westward, recorded from a stream in Anticosti Island (Schmitt 1904); "does not occur above the Grand Falls, St. John River" [New Brunswick] (Cox); nor according to Nash above the Falls of Niagara in Ontario, the Falls "forming an insurmountable obstacle to further progress"; in the United States extending from the west ward to the Rocky Mountains, and southward into Mexico and Central America; occurs also in the West Indies, "caught in considerable numbers in Porto Rico in the small bamboo traps or 'nasas' set in the small rivers" (Evermann and Marsh, 1899); recorded from streams and lakes of Greenland (Fabricius, 1780, as *Muræna anguilla*).

202. Simenchelys parasiticus Gill.
Snubnosed Eel.
Bathybial: Parasitic: burrowing into the flesh of the halibut and other fishes.
Recorded from the Banks off Newfoundland and from Sable Island Banks;* recorded also from the Azores (Collett, 1889, as *Conchopathus grimaldii*).

203. Leptocephalus conger Linnæus. (Plate VIII, figure 82).
Conger Eel.
Marine.
Atlantic Ocean: on the American side extending from Cape Cod to Brazil: recorded by Dr. Stahl from Porto Rico (Evermann and Marsh, 1899): coasts of Europe, Asia, and Africa: has been recorded from New Brunswick "a specimen taken in Pokemouche Gully in October, 1849" (Cox).

*A specimen collected near Sable Island Banks is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. LVI.

204. Avocettina infans Gunther.

Snipe Eel.

Bathybial.

Recorded (but with a query* as to its being this species) from Prince of Wales Island, Alaska, close to the British Columbian border (Beau, 1890, as *Labrichthys gilli*) and therefore given here; otherwise known from West Indies, mid-Atlantic, off Pernambuco; at a depth of 2,500 fathoms.

205. Nemichthys scolopaceus Richardson.

Snipe Eel.

Bathybial.

Atlantic Ocean, and Pacific Ocean, at least if the following *note to which see*) is the same species: "fishing banks off the coast" of Nova Scotia (Jones, 1879); Grand Banks Newfoundland; off New England coast; Madeira Islands; first recorded from south Atlantic (Richardson, 1848).

206. Nemichthys avocetta† Jordan and Gilbert.

Snipe Eel.

Bathybial.

Known from vicinity of Victoria (Vancouver Island), and from Puget Sound, State of Washington.

207. Synaphobranchus pinnatus Gronow.

Deep-sea Eel.

Bathybial.

Northern Atlantic and western Pacific; "fishing banks off the coast of Nova Scotia" (Jones, 1879); Banks of Newfoundland; Canary and Madeira Islands; *S. affinis* Gunther, of Japan may be referable to this species.

208. Gastrostomus bairdii Gill and Ryder.

Gulper.

Bathybial; has been obtained in from 389 to 1,167 fathoms.

Known from Banks of Newfoundland and Davis Straits.

209. Lucius reticulatus Le Sueur. (Plate VIII, figures 83 and 84).

Green Pike; Common Eastern Pickerel.

Lacustrine and fluviatile.

Ranges from New Brunswick and the St. Lawrence River westward to Ontario; extensively distributed east of the Alleghany Mountains to southern United States.

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*In their synonymy of *A. infans* Drs. Jordan and Evermann query *Labrichthys gilli*, but add in a foot-note "probably identical with *Avocettina infans*."

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†Perhaps ought not to be regarded distinct as a species from the preceding, "differing in some slight respects from all Atlantic specimens examined, but very likely not a distinct species." Jordan and Evermann.

210. Lucius lucius Linnæus. [illegible] plate IX, figures 85 and 86.
Common Pike.
Lacustrine and fluviatil[illegible]
Nearly cosmopolitan in the fresh waters of the northern parts of North America, Europe and Asia, being [illegible] fresh-water fishes [illegible] distributed in British North America [illegible] limits of its northern distribution not yet well determined, but it occurs in Alaska; extending in the United States from the State of New York westward to the Mississippi valley, perhaps further west [illegible] Ohio River.

211. Lucius masquinongy Mitchill.
Maskinonge.
Lacustrine and fluviatile.
St. Lawrence River and Great Lakes region, embracing the Provinces of Quebec and Ontario; common among the Thousand Islands; said also to occur in Manitoba; ranging from Lake Champlain [illegible]

212. Umbra limi Kirtland.
Mud Minnow.
Lacustrine and fluviatil[illegible]
Ranges from the Province of Quebec westward through the Great Lakes region to Minnesota and southward to the Ohio River.

213. Fundulus heteroclitus Linnæus.
Common Killifish.
Usually in brackish water, but [illegible] to the [illegible] lagoons.
Maritime Provinces, Gaspe Bay, Anticosti Island, and Labrador; in the United States extending from the coast of Maine southward to the [illegible].

214. Fundulus heteroclitus macrolepidotus Walbaum.
Common Cobbler.
In brackish water.
Recorded from mouth of Little River, St. John, New Brunswick (Cox, 1895, as *F. nigrofasciatus*); ranges in the United States from Maine southward [illegible].

215. Fundulus heteroclitus badius Garman.
Garman's Cobbler.
In brackish water.
Island of Grand Manan, New Brunswick.

216. Fundulus diaphanus Le Sueur.
Fresh-water Killy; Grayback.
Lacustrine, fluviatile, and marine; frequenting river mouths and ascending streams.
Maritime Provinces, including Prince Edward Island, and Provinces of Quebec and Ontario; in the United States from Maine to North Carolina.

217. Fundulus notatus Rafinesque.
Top Minnow.
Abounds in ponds and canals.
Detroit River, Michigan, extending southward to southern States; given here as likely to be found on the Ontario side of the Detroit River.

218. Macrostoma quercinum Goode and Bean.
Bathybial.
Grand Banks, Newfoundland, in from 700 to 800 fathoms (Goode and Bean, 1895, as *Notoscopelus quercinum*): also the Mediterranean.

219. Macrostoma margaritiferum Goode and Bean.
Marine.
Based upon two specimens from off Banquereau (Goode and Bean, 1895, as *Notoscopelus margaritifer*).

220. Macrostoma castaneum Goode and Bean.
Marine.
Based upon two specimens from Grand Banks of Newfoundland (Goode and Bean, 1895, as *Notoscopelus castaneus*).

221. Ceratoscopelus madeirensis Lowe.
Lantern Fish.
Bathybial.
Grand Banks of Newfoundland, in some 1,500 fathoms, extending eastward to the Mediterranean.

222. Lampanyctus güntheri Goode and Bean.
Marine.
Grand Banks of Newfoundland.

223. Lampanyctus gemmifer Goode and Bean.
Bathybial.
Based upon a specimen in 538 fathoms from Grand Banks of Newfoundland (Goode and Bean, 1895).

224. Nannobrachium nannochir Gilbert.
Bathybial.
British Columbia: ranges from Santa Barbara Islands, California, to Alaska.

225. Diaphus theta Eigenmann and Eigenmann.
Head-light Fish.
Bathybial.
Ranges at least from British Columbia to Point Loma near San Diego, California.

226. Rhinoscopelus coccoi Cocco.
Marine.
Coast of Newfoundland, abundant in the Gulf Stream extends eastward to the Mediterranean and to the coast of Africa.

227. Myctophum punctatum Rafinesque.
Lantern Fish.
Marine.
Off Banks of Newfoundland: extending from Gulf Stream eastward to the Mediterranean.

228. Benthosema arcticum Lutken.
Marine.
Davis Straits, Greenland (Lutken, 1892, as *Scopelus arcticus*): given here owing to its occurrence in Davis Straits.

229. Tarletonbeania crenularis Jordan and Gilbert.
Marine.
Off Straits of Fuca, State of Washington: Santa Barbara Channel, California: "two small specimens known, one from the stomach of an albacore, the other blown on a vessel during a storm" (Jordan and Evermann): given here owing to its occurrence off Straits of Fuca.

230. Arctozenus borealis Reinhardt.
Bathybial.
"Greenland; occasionally southward to Cape Ann" (Jordan and Evermann), and therefore, being a northern fish, but extending south beyond our coasts, mentioned here.

231. Plagyodus ferox Lowe.
Lancet Fish.
Bathybial.
Off Nova Scotia: Grand Banks, Newfoundland: coast of Massachusetts: Madeira, and Canary Islands (Cuvier and Valenciennes, 1849, as *Alepisaurus azureus*).

232. Plagyodus æsculapius* Bean.
Wolffish: Handsawfish.
Marine.
British Columbia: ranges from California northward to Alaska.

233. Plagyodus borealis Gill.
Handsawfish.
Marine.
British Columbia: ranges from the Aleutian Islands to Puget Sound.

234. Percopsis guttatus Agassiz.
Sand Roller: Trout Perch.
Lacustrine and fluviatile.
Ranging more or less locally, sometimes as in the Great Lakes region abundantly, from Lake Champlain westward to Alberta, northward to the Hudson Bay region, and southward to Kansas and the Ohio and Delaware Rivers: ascends the river Moira, passing the town of Tweed, Ontario, at the spawning season in great numbers.

235. Columbia transmontana Eigenmann and Eigenmann.
Oregon Trout Perch.
Fluviatile: "sandy or weedy lagoons."
Known from the lower basin of the Columbia river: given here as likely to be found in British Columbia.

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*"It does not seem to differ at all from *Plagyodus ferox*." Jordan.

236. Notacanthus phasganorus Goode.
Spiny Eel.
Marine.
Grand Banks, Newfoundland: known from one specimen which was taken from the stomach of a sleeper shark.

237. Macdonaldia rostrata Collett.
Spiny Eel.
Bathybial.
Off Newfoundland: stations 2216 and 2533 of the United States s.s. *Albatross*; has also been obtained west of Iceland.

238. Lampris luna Gmelin.
Opah; Kingfish.
Pelagic.
Recorded from Sable Island,* Nova Scotia: "off Madeira, occasionally taken off Newfoundland, Maine, and Cuba, also at Monterey and other places in California" (Jordan and Evermann); off coasts of Europe, and in the Mediterranean; British Islands, including coasts of Ireland and the Orkney Islands (Yarrell, 1859).

239. Eucalia inconstans Kirtland.
Brook Stickleback.
Fluviatile: in small brooks especially.
Ranges from Maritime Provinces to Alberta; in the United States from State of New York westward to Minnesota; doubtfully recorded from Sukkertoppen, Greenland (Cope, 1865).

240. Eucalia inconstans pygmæa Agassiz.
Dwarf Stickleback.
Lacustrine.
Lake Superior (Agassiz, 1850, as *Gasterosteus pygmæus*).

241. Pygosteus pungitius Linnæus.
Nine-spined Stickleback.
Lacustrine, fluviatile, and in brackish water.
Very widely distributed in Canada from the Atlantic probably to the Pacific, and to the Arctic Sea; Newfoundland and Labrador; in the United States south to Long Island, and in Alaska; northern parts of Europe.

242. Pygosteus pungitius brachypoda Bean.
Arctic Stickleback.
Lacustrine and fluviatile.
Arctic regions: "mountain streams and lakes about Baffin's Bay" (Jordan and Evermann).

*"We have before us a drawing of a specimen of *Lampris luna* made at Sable Island by James Farquhar in 1856, and sent with an accompanying letter to Dr. J. Bernard Gilpin, of Halifax." Jordan and Evermann. "A specimen was taken at Sable Island some [illegible] ago, a rough sketch of which, with the colours well depicted, was made by one of the men belonging to the establishment there, and given to Dr. Bernard Gilpin, in whose portfolio I saw it and carefully examined it. Although the sketch was rude in the extreme, the peculiar form and brilliant colours left no doubt as to the fish. The man had never seen one before." Jones.

PLATE IX.

85, 86. **Lucius lucius** (Common Pike)

87, 88. **Merluccius bilinearis** (Silver Hake or Whiting)

89, 90. Pollachius virens (Pollack)

91, 92. Microgadus tomcod (Tomcod or Frostfish)

93, 94. Gadus callarias (Common Codfish)

95, 96. Melanogrammus æglefinus (Haddock)

97. Lota maculosa (Fresh-water Ling or Burbot)

98, 99. Urophycis tenuis (Codling or White Hake)

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243. Gastrosteus aculeatus* Linnæus.
Common Stickleback.
Fluviatile, in brackish water, and marine.
Maritime Provinces; and Gaspé district, Province of Quebec; also found in Ontario, Hudson Bay, Labrador, and Greenland; extends southward in the United States to New Jersey; coasts and streams of northern Europe.

244. Gastrosteus atkinsii Bean.
Eastern Stickleback.
Lacustrine and fluviatile.
Province of Quebec and State of Maine.

245. Gastrosteus cuvieri Girard.
Partly Armoured Stickleback.
Lacustrine, fluviatile, and in brackish water.
Labrador, Newfoundland, and Anticosti Island (Schmitt, 1904, as *Gasterosteus bispinosus*); extending southward to the coast of Massachusetts.

246. Gastrosteus cataphractus Pallas.
Alaska Stickleback.
Marine; "rarely or never entering fresh water."
British Columbia; ranges from California to Alaska, hence to Siberia and Japan.

247. Gastrosteus williamsoni microcephalus Girard.
California Stickleback.
Coastwise streams and brackish water.
British Columbia; ranges from Lower California, Mexico, to Alaska.

248. Apeltes quadracus Mitchill.
Four-spined Stickleback.
Marine.
Maritime Provinces; ranges in the United States from Maine to New Jersey.

249. Aulorhynchus flavidus Gill.
Yellow Stickleback.
Marine.
British Columbia; ranges from coast of California to Alaska.

250. Fistularia tabacaria Linnæus.
Trumpet Fish.
Marine.
"Occasional specimens taken in shore waters [of Nova Scotia] during the summer months" (Jones, 1879); ordinary range, "West Indies and neighbouring seas, generally common; occasional northward to Carolina and Florida, or even to Long Island" (Jordan and Evermann); has been recorded also from coast of Massachusetts.

G. aculeatus and *G. bispinosus* are treated here as one and the same species, the European name being adopted for the two.

251. Fistularia petimba Lacépède.
Trumpet Fish
Marine.
"Western Pacific, and other warm seas, also recorded from the Bermudas and from Cuba" (Jordan and Evermann); "occasionally taken in shore waters" of Nova Scotia "a fine specimen . . . . . taken at Portugal Cove, Halifax Harbour" and "a small specimen is in the Halifax Museum" (Jones, 1879, as *F. serrata*).

252. Siphostoma griseolineatum Ayres
Pipefish
Marine.
British Columbia and Puget Sound, extending southward to California.

253. Siphostoma fuscum Storer
Common Pipefish.
Marine.
Atlantic coast of the United States from Cape Ann southward to Virginia: "two specimens taken, 16 May, in Mill cove, Dartmouth,"* and a specimen obtained in North West Arm, Halifax County, Nova Scotia (11th May, 1909 (Piers);† and also recorded as "common in shore waters" of Nova Scotia (Jones, 1879, as *Syngnathus perkinsus*).

254. Hippocampus hudsonius‡ De Kay.
Common American Sea-horse.
Marine: attaching itself by coiling its caudal region around sea-weeds or other objects.
Recorded from coast of Nova Scotia (Cox -verbally), and from Atlantic coast of Canada (Whiteaves, 1886, as *H. heptagonus*): "Atlantic coast from Cape Cod southward to Charleston" (Jordan and Evermann).

255. Scombresox saurus Walbaum.
Saury: Billfish.
Pelagic: capable when pursued of springing out of the water, and for an interval of skipping along the surface.
Maritime Provinces: both sides of the north Atlantic, and the open sea.

256. Exocœtus volitans Linnæus.
Flying-fish.
Pelagic, and capable of suspending itself and moving by its expanded pectoral fins for a time in the atmosphere.
Atlantic coast of North America, northward to Banks of Newfoundland: many coasts and open seas.

*"Both specimens are males and differ from the normal in having three more rays (43) in the dorsal fin than the maximum normal number (40), and in the dorsal being on 11½ and 12 rings respectively instead of only 9 rings. It must be either a variety of *S. fuscum* or possibly a new species." Piers

†Piers says;—"It presented a slight variation from the typical *S. fuscum*."

‡*H. antiquorum* recorded by Jones as "occasionally taken [in Nova Scotia] during the summer months; a Gulf Stream migrant no doubt" is probably referable to this species.

247. Exonautes vinciguerra Jordan and Meek
Flying-fish.
Pelagic, and rising out of the water sails or springs through the air.
Open Atlantic extends from off Newfoundland southward, and occurs in the Gulf of Mexico, coasts of southern Europe.

248. Cypselurus heterurus Rafinesque.
Flying-fish.
Pelagic, and rising out of the water sails or springs through the air.
Grand Banks Newfoundland, extending to both coasts of Atlantic Ocean.

250. Ammodytes dubius Reinhardt
Sand Launce; Lant.
Marine; sandy shores.
Labrador and Greenland, southward to Cape Cod.

260. Ammodytes americanus De Kay.
Sand Launce; Sand Lant.
Marine; sandy shores.
Maritime Provinces, Gaspe Basin, Labrador, and Newfoundland; southward to Cape Hatteras, North Carolina.

261. Ammocytes personatus Girard.
Sand Launce.
Marine; "burying itself in the sand."
British Columbia; shores of the Pacific from California to Alaska, including the Aleutian Islands, and westward to Japan.

262. Menidia menidia notata* Mitchill.
Silverside.
Marine.
Maritime Provinces and southward.

263. Labidesthes sicculus Cope.
Lake Silverside; Skipjack.
Lacustrine and fluviatile.
Great Lakes region and Mississippi valley southward to the southern United States.

264. Atherinopsis californiensis Girard.
Pescado del Rey; California Smelt.
Marine.
Ordinary range coast of California; three mounted specimens in the Canadian Fisheries Museum were obtained by Mr. S. F. Denton, taxidermist, in British Columbia.

*"An examination of numerous specimens of *Menidia* from various places between Florida and Halifax shows that *M. notata* and *M. menidia* intergrade perfectly. The first will therefore stand as *Menidia menidia notata*." Jordan and Evermann.

268. Chiasmodon niger Lowe
Black Swallower
Bathybial
Recorded from Magdalena, Madeira—the first specimen by Lowe in 1850, at a depth of 412 fathoms—and the species found again at the same locality by Johnson in 1862; a specimen obtained by the *Challenger* in the mid Atlantic on 20th August 1874 at a depth of 1,500 fathoms—two specimens found floating upon the surface of the water—one near the island of Dominica, and the other in June 1880 at La Have Bank* off Nova Scotia, by the Gloucester schooner *Hesper*, H. Nova.

[illegible] Sphyræna argentea Girard
California Barracuda
Marine
Recorded from Vancouver Island, British Columbia—a specimen in the Provincial Museum, Victoria; "Pacific coast from San Francisco southward to Cape San Lucas—very abundant about the Santa Barbara Islands" (Jordan and Evermann).

267. Palinurichthys perciformis Mitchill
Rudderfish
Marine
Atlantic coast of North America southward to Cape Hatteras, North Carolina: "Two specimens were brought to the Museum [at Halifax] some years ago by a fisherman of Devil's Island" and during the summer of 1885 "they were very plentiful in our [Halifax] harbour" (Honeyman, 1886, as *Palinurichthys perciformis*); Canso,† Nova Scotia, and Banks of Newfoundland: "one specimen once taken in a live-box off Cornwall [England], having drifted across from America" (Jordan and Evermann).

[illegible] Palometa simillimus Ayres.—Plate XIII, figures 156 and 157).
California Pompano—Poppy Fish
Marine.
British Columbia and Puget Sound, southward to California.

269. Poronotus triacanthus Peck
Dollarfish—Harvest Fish
Marine
Maritime Provinces southward to [illegible]

270. Icosteus ænigmaticus Lockington
Ragfish.
Bathybial
Off the coasts of the States of Washington, Oregon, and California, given here as likely to be found in British Columbian waters.

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*This specimen, which had swallowed a fish larger than itself, is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America' vol. IV, pl. CCCXXXII. There is also a fine illustration of this species, which had swallowed a Scopelus much larger than itself, in Dr. Günther's 'Introduction to the Study of Fishes' p. 311.

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† The fishermen call this species the 'Rudder fish,' and are familiar with it, as they state that it follows the sailing vessels into port from the 'Banks.' (Cornish.)

271. Acrotus willoughbyi Beau.
Rockfish
Bathybiod
Known from the States of Washington and California; given here as likely to be found in British Columbia.

272. Zaprora silenus Jordan.
Prowfish
Marine
Only two specimens known: one from Nanaimo (the type,* which is in the Provincial Museum, Victoria) and the other from the Straits near Victoria, Vancouver Island.

273. Merluccius bilinearis Mitchill. (Plate IX, figures 87 and 88.)
Silver Hake; Whiting.
Marine.
Ranges from the coast of Labrador, embracing Newfoundland, Gulf of St. Lawrence, Maritime Provinces, and the New England States, southward to the Bahama Islands.

274. Merluccius productus Ayres.
Pacific Hake.
Marine.
Ranges from British Columbia, according to Goode, from Alaska and Puget Sound southward to Santa Catalina Island.

275. Boreogadus saida Lepechin.
Northern Pollack.
Marine; hiding in holes in floating ice.
Arctic regions of America and Asia, extending from Greenland to Siberia; recorded for Labrador; also said to occur on coasts of Europe, but only far north.

276. Pollachius virens Linnæus. (Plate IX, figures 89 and 90.)
Pollack; Coalfish.
Marine.
Both sides of north Atlantic; recorded from Davis Straits † Maritime Provinces southward to State of New York; "on the shores of Spitzbergen," "in all the northern seas and in the Baltic," Orkney and Shetland Islands; coasts of England; "on the Irish coast from Waterford along the eastern shore to Belfast," and "very abundant on the western and northern coasts of Scotland" (Yarrell, 1859); "occurs about Iceland" (Goode, 1884); on the European side at least as far south as the coast of France.‡

*The type specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CLII.

† "The fry, under four or five inches in length, were caught with the trawl-net on the west coast of Davis Straits, during the first voyage of Captain Sir Edward Parry." (Yarrell.)

‡ "Concerning the limits of its southern range authorities differ. Günther places this at latitude 46° in the Bay of Biscay, whilst others claim that it enters the Mediterranean. Canestrini states that it has been observed at Taranto. It does not appear, however, that the species is abundant south of the English Channel." (Goode.)

277. Theragra fucensis* Jordan and Gilbert.
Wall-eyed Pollack.
Marine.
British Columbia and Puget Sound southward to coast of California: probably extends northward to coast of Alaska.

278. Microgadus proximus Girard.
California Tomcod.
Marine.
British Columbia: ranges from coast of California northward to coast of Alaska, including the Aleutian Islands.

279. Microgadus tomcod Walbaum. (Plate IX, figures 91 and 92).
Tomcod· Frostfish.
Anadromous.
Ranges from coast of Labrador, and embracing the Gulf of St. Lawrence Gaspe Bay, and Maritime Provinces, southward to the coast of Virginia.

280. Gadus callarias Linnæus. (Plate IX, figures 93 and 94).
Common Codfish.
Marine.
Both sides of north Atlantic: ranging on the American side at least† from coast of Labrador, and embracing the Gulf of St. Lawrence, Gaspe Bay, Maritime Provinces, and Newfoundland, southward to coast of Virginia; and on the European side "found universally from Iceland very nearly as far south as Gibraltar" (Yarrell, 1859).

281. Gadus macrocephalus Tilesius.
Pacific Codfish.
Marine.
British Columbia: both coasts of northern Pacific, ranging from Bering Sea southward to the off-shore banks of Oregon and to Japan: said to be very abundant in the sea of Okhotsk.

282. Gadus ogac Richardson.
Greenland Codfish.
Marine.
Recorded from Labrador and Greenland.

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*"This form may intergrade with *Theragra chalcogramma*, though the original types seem well separated. Little is known of its range to the northward." Jordan and Evermann.

†*G. callarias*, *G. macrocephalus*, and *G. ogac*, are very closely allied, and in assigning specific rank to each it is not easy from ichthyological works to determine just where the northern range of *G. callarias* is as the three forms are often treated of as one and the same species. For instance, Goode says:—"The codfish is usually found in the North Atlantic, in the North Pacific, and in the Polar Ocean, its range extending far beyond the Arctic Circle" thus making no discrimination of species

283. Melanogrammus æglefinus Linnæus. (Plate IX, figures 95 and 96).
Haddock.
Marine.
Both coasts of north Atlantic: on the American side ranging from coast of Labrador southward, and embracing Gulf of St. Lawrence, Maritime Provinces, and Newfoundland, to coast of North Carolina; and on the European side from Iceland and "the Scandinavian coast to East Finmark and Varanger Fjord" (Goode, 1888) southward to the coast of France: "coast of Great Britain, from extreme north to the Land's End" and "all round the shores of Ireland" (Yarrell, 1859).

284. Antimora viola Goode and Bean.
Violet Antimora.
Bathybial.
"Fishing Banks off the coast" of Nova Scotia (Jones, 1879, as *Haloporphyrus viola*): Banks of Newfoundland, and southward.

285. Antimora microlepis Bean.
Small-scaled Antimora.
Bathybial.
Off Queen Charlotte Islands: also recorded from coast of California and Bering Sea.

286. Lota maculosa* Le Sueur. (Plate IX, figure 97).
Fresh-water Ling: Burbot.
Lacustrine and fluviatile.
Well nigh cosmopolitan in northern North America: recorded from Labrador, and ranging from New Brunswick westward to British Columbia; and from the Arctic regions southward to northern States of the Union.

287. Molva molva Linnæus.
Ling.
Marine.
Reputed to have been recorded off Newfoundland:† "common on the northern coasts of Europe, Iceland, and Greenland" (Gunther, 1880, as *M. vulgaris*): in the British Islands —"among the Western Islands, in the Orkneys, and on the Yorkshire coast; in Cornwall, and the Scilly Islands; and the species may be traced nearly all round the Irish coast" (Yarrell, 1859, as *Lota molva*): ranges "from Spitzbergen to the Gulf of Gascony most abundant along the coast of northern Europe, especially in the German Ocean and off Norway" (Jordan and Evermann).

*"The American Burbot is very close to the common species of northern Europe and Asia, *Lota lota* . . . . . and may prove wholly identical with the latter." Jordan and Evermann. Gunther does not distinguish the two, for he says: —"It is locally distributed in Central and Northern Europe and North America." If the two are to be regarded as forms of one and the same species then the geographical range of the fresh water ling is in all probability nearly co-extensive with the fresh waters of the northern part of the northern hemisphere.

†"It is said to have been found in deep water off Newfoundland, but we have been unable to find the specific record." Jordan and Evermann.

289. Urophycis regius Walbaum.
Codling.
Marine.
"Sir John Richardson gives Halifax as a locality for this species" (Jones, 1879, as *Phycis regius*); north Atlantic southward to Cape Fear.

290. Urophycis tenuis Mitchill. (Plate IX, figures 98 and 99).
Codling; White Hake.
Marine.
Ranges from coast of Labrador southward to coast of North Carolina; Gulf of St. Lawrence, Gaspe Bay, Maritime Provinces, and Newfoundland.

290. Urophycis chuss Walbaum.
Codling; Squirrel Hake.
Marine.
Geographical range essentially the same as that of the preceding species.

291. Gaidropsarus ensis Reinhardt.
Three-bearded Rockling.
Bathybial.
"Atlantic coast of North America, from Greenland to Cape Hatteras, in deep water, reaching a depth in the Gulf Stream of 1,081 fathoms" (Jordan and Evermann).

292. Enchelyopus cimbrius Linnæus.
Four-bearded Rockling.
Marine.
Both sides of north Atlantic, extending southward to the Gulf Stream; recorded from Chedabucto Bay, vicinity of Canso, Nova Scotia (Cornish, 1901 or 1902); "fishing banks off the coast" of Nova Scotia (Jones, 1879, as *Onos Rhinomonus cimbrius*); has been obtained in Bay Chaleur; "not uncommon on the southern coast of Sweden," found also "among the islands of the Kattegat, on the west coast of Norway," and recorded from the Frith of Forth and Rothsay (Yarrell, 1859, as *Motella cimbria*).

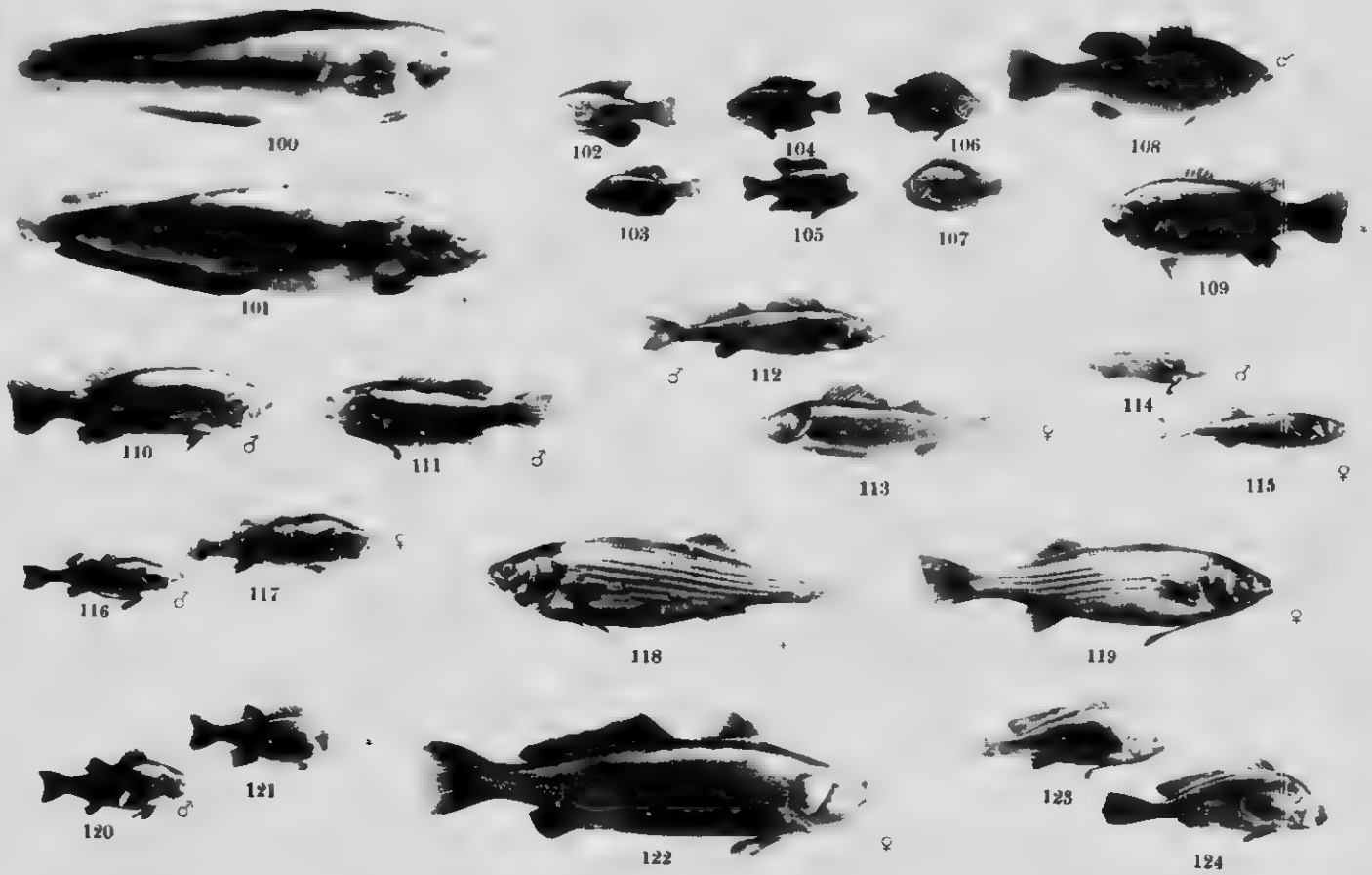
293. Brosme brosme Muller. (Plate X, figures 100 and 101).
Cusk.
Marine.
Both sides of north Atlantic; ranging on the American side from Greenland, and embracing Labrador, Newfoundland, Maritime Provinces, and New England States, southward to coast of Massachusetts; "occurs in Iceland and Spitzbergen, and along the entire length of the Scandinavian Peninsula" and "occasionally taken in the Frith of Forth" (Goode, 1888); frequently found "in the Orkney Islands, and swarms among those of Zetland" "among the Faröe Islands;" "coasts of Norway as far as Finmark;" and "just touches the most northern point of Denmark, at Skagen in Jutland" (Yarrell, 1859, as *Brosme vulgaris*).

294. Moseleya cyclolepis Gilbert.
Bathybial.
Off Queen Charlotte Islands, British Columbia.

PLATE X.

100–101	Brosme brosme (Cusk)
102–103	Pomoxis sparoides (Calico Bass)
104–105	Ambloplites rupestris (Rock Bass)
106–107	Eupomotis gibbosus (Common Sunfish)
108–109	Micropterus salmoides (Large-mouth Black Bass)
110–111	Micropterus dolomieu (Small-mouth Black Bass)
112–113	Stizostedion vitreum (Pike Perch)
114–115.	Stizostedion canadense (Sauger)
116–117	Perca flavescens (Yellow Perch)
118–119	Roccus lineatus (Striped Bass)
120–121	Morone americana (White Perch)
122.	Cynoscion regalis (Common Weakfish)
123–124	Aplodinotus grunniens (Fresh-water Drum or Lake Sheepshead)

Plate X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295. **Albatrossia pectoralis** Gilbert.
Bathybial.
British Columbia: ranges from coast of Oregon northward to Bering Sea.

296. **Chalinura serrula** Bean.
Bathybial.
Coast of British Columbia east of Prince of Wales Island, Alaska.

297. **Chalinura filifera** Gilbert.
Bathybial.
Off Queen Charlotte Islands, British Columbia.

298. **Coryphænoides rupestris** Gunner.
Bathybial.
"Arctic seas and the north Atlantic, on both coasts south to the banks of Newfoundland and Norway" (Jordan and Evermann).

299. **Macrurus holotrachys** Günther.
Grenadier.
Bathybial.
Recorded from Banks of Newfoundland, and from the mouth of the Rio de la Plata.

300. **Macrurus acrolepis** Bean.
Grenadier.
Bathybial.
Coasts of British Columbia, and of the States of Washington and Oregon: also recorded from off Bogoslof Island, Bering Sea.

301. **Aphredoderus sayanus** Gilliams.
Pirate Perch.
Fluviatile: sluggish streams and bayous.
Presumably Ontario:* State of "New York coastwise to Texas, and throughout the Mississippi basin" (Jordan and Evermann).

302. **Pomoxis annularis** Rafinesque.
Crappie.
Lacustrine and fluviatile: frequenting sluggish waters.
Ranges from the St. Lawrence River and Great Lakes region westward to the Dakotas and southward to Texas.

303. **Pomoxis sparoides** Lacépède. (Plate X, figures 102 and 103).
Calico Bass: Strawberry Bass.
Lacustrine and fluviatile.
Provinces of Quebec and Ontario, through the Great Lakes region, including Lake of the Woods, westward to Manitoba: in the United States ranging from eastern States westward to the Mississippi Valley and southward to the southern States.

*"It should be found in the streams of the Niagara district and at the western end of Lake Erie." Nash.

304. Ambloplites rupestris Rafinesque. (Plate X, figures 104 and 105).
Rock Bass.
Lacustrine and fluviatile.
Provinces of Quebec and Ontario, embracing the St. Lawrence River and Great Lakes region, westward to Manitoba; in the United States ranging from Vermont westward to the Mississippi Valley and southward to Louisiana and Texas.

305. Chænobryttus gulosus Cuvier and Valenciennes.
Warmouth. Goggle-eye.
Lacustrine and fluviatile.
Presumably Ontario;* Great Lakes region, westward to Iowa and Kansas, and southward to Georgia and Texas.

306. Apomotis cyanellus Rafinesque.
Green Sunfish.
Lacustrine and fluviatile; ascending brooks.
Possibly Ontario;† ranges from Great Lakes region to Mexico.

307. Lepomis auritus Linnæus.
Long-eared Sunfish; Yellow Belly.
Fluviatile.
New Brunswick;‡ Maine to southern United States.

308. Lepomis megalotis Rafinesque.
Long-eared Sunfish.
Fluviatile.
Possibly Ontario; Ohio to Minnesota, and southward to South Carolina and the Rio Grande.

309. Lepomis humilis Girard.
Red-spotted Sunfish.
Lacustrine and fluviatile.
Recorded from Langford Lake, British Columbia§ (May 1908 specimen in Provincial Museum, Victoria); ranges from Ohio westward to the Dakotas and southward to Texas.

*"I am under the impression that some years ago this fish was found in the marsh at Toronto, and also near Hamilton, but of late no specimens have been obtainable. It should occur in Lake Erie and will probably be found in the Niagara district." Nash.

†"I have no Ontario records of this fish, but as it will probably be found in Lake Erie it is mentioned here." [Check-list Fishes of Ontario.] Nash.

‡In regard to its occurrence in New Brunswick Dr. Cox says that the only record he knows is that of Dr. Leath Adams, and that its alleged occurrence in that province is extremely doubtful.

§This is the only record for Canada of this species known to the author, and the locality is a long way from the hitherto recognized range of the species. It may possibly range in waters of the Prairie Provinces, but as yet does not appear to have been recorded.

310. Lepomis pallidus Mitchill.

Blue Sunfish.

Lacustrine and fluviatile.

Ontario and Great Lakes region; ranging in the United States from the western part of the State of New York westward to the Missouri Valley and southward to the Rio Grande and Florida, or according to Goode to Mexico.

311. Eupomotis euryorus McKay.

Lacustrine and fluviatile.

The type recorded from Fort Gratiot, Lake Huron, Michigan, opposite Point Edward, Ontario (McKay, 1881, as *Lepomis euryorus*); and for that reason mentioned here; also recorded from northern Ohio and northern Indiana.

312. Eupomotis gibbosus Linnæus. (Plate X, figures 106 and 107).

Common Sunfish.

Lacustrine and fluviatile.

Ranging in Canada from the Maritime Provinces to Lake Huron; and in the United States from Maine westward to the Mississippi Valley, and southward to Florida.

313. Micropterus dolomieu Lacépède. (Plate X., figures 110 and 111).

Small-mouth Black Bass.

Lacustrine and fluviatile.

Widely distributed in the Provinces of Ontario and Quebec, extending through the St. Lawrence River and Great Lakes region westward to Manitoba and the Mississippi Valley, and southward to South Carolina, Mississippi, and Arkansas; introduced into waters of other Provinces of the Dominion, and of various States of the Union, and also into waters of various European countries.

314. Micropterus salmoides Lacépède. (Plate X, figures 108 and 109).

Large-mouth Black Bass.

Lacustrine and fluviatile.

Provinces of Ontario and Quebec, extending through the St. Lawrence River and Great Lakes region westward to Manitoba; ranges in the United States from the Great Lakes westward to the Mississippi Valley and southward to southern States; also in waters of Mexico.

315. Stizostedion vitreum Mitchill. (Plate X, figures 112 and 113).

Pike Perch.

Lacustrine and fluviatile.

Provinces of Ontario and Quebec, extending through the St. Lawrence River and Great Lakes region westward to Saskatchewan; Hudson Bay region and Labrador; ranges in the United States from Vermont westward to the upper Mississippi Valley and southward to Alabama and Georgia.

316. Stizostedion canadense C. H. Smith. (Plate X, figures 114 and 115).
Sauger.
Lacustrine and fluviatile.
Provinces of Ontario and Quebec; distributed under one or two varieties* from the St. Lawrence River and its tributaries westward, and embracing Manitoba, and perhaps Saskatchewan, to Montana, and southward to Arkansas.

317. Perca flavescens Mitchill. (Plate X, figures 116 and 117).
Yellow Perch; American Perch.
Lacustrine and fluviatile.
Widely distributed in British North America from the Atlantic sea-board to Saskatchewan, and in the United States from Maine to the upper Missouri Valley, and extending southward to North Carolina.

318. Percina caprodes† Rafinesque.
Log Perch.
Lacustrine and fluviatile.
Extends from the Province of Quebec through the St. Lawrence River and Great Lakes region, westward to Lake Superior and Iowa, and southward to the Rio Grande and State of Mississippi.

319. Hadropterus aspro Cope and Jordan.
Black-sided Darter.
Fluviatile; frequenting clear gravelly streams.
Ranges from the Great Lakes region westward to Manitoba and the Missouri Valley and southward to Arkansas.

320. Hadropterus güntheri Eigenmann and Eigenmann.
Gunther's Darter.
Fluviatile and lacustrine.
Manitoba to Iowa; presumably Fort Gratiot, Lake Huron, Michigan, opposite Point Edward, Ontario (Girard, 1859, as *Alvordius maculatus*).‡

321. Cottogaster copelandi putnami§ Jordan and Gilbert.
Putnam's Darter.
Lacustrine and fluviatile.
Ranges from Lake Champlain to Lake Huron.

322. Cottogaster shumardi Girard.
Shumard's Darter.
Fluviatile.
Possibly to be found in Ontario waters: "Michigan to Ohio, Indiana, and Illinois, and southward to Kentucky and Arkansas" (Jordan and Evermann).

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*Three varieties of this species have been distinguished: the typical form and *S. c. griseum* and *S. c. borcum*.

†Two varieties of this species have been distinguished: the typical form and *P. c. zebra*.

‡"*Alvordius maculatus* is more likely to be *Hadropterus guntheri* than *H. aspro*, as Girard describes it as having the head scaleless. Perhaps both are varieties of one species." Jordan and Evermann.

§Questionably distinct from the ordinary *C. copelandi*.

323. Cottogaster cheneyi Evermann and Kendall.
Cheney's Darter.
Fluviatile.
Known from Racket River, near Norfolk, St. Lawrence County, State of New York: given here as it may be found in Ontario waters.

324. Boleosoma nigrum Rafinesque.
Johnny Darter.
Fluviatile and lacustrine: frequenting streams among gravel and weeds.
St. Lawrence River and Great Lakes region, and Ohio valley, westward to Saskatchewan and upper Mississippi valley, extending southward to Colorado.

325. Boleosoma nigrum olmstedi Storer.
Tesselated Darter.
Fluviatile and lacustrine.
Province of Quebec, St. Lawrence River, and southern and eastern parts of Ontario extending southward to Virginia.

326. Ammocrypta pellucida Baird.
Sand Darter.
Lacustrine and fluviatile: burys in the sand in clear streams.
Will likely be found in Ontario: ranges from Lake Erie westward to Minnesota and southward to Texas.

327. Etheostoma boreale Jordan.
Northern Darter.
Lacustrine and fluviatile.
Known localities of occurrence:—near Montreal (Jordan, 1884, as *Pacilichthys borealis* the type); Gull Lake, Muskoka district, Ontario; and Manitoba; perhaps occurs far north in the Province of Quebec, and records may be looked for from other localities.

328. Etheostoma iowæ Jordan and Meek.
Fluviatile and lacustrine.
Saskatchewan and perhaps Manitoba: range extending southward to Iowa and Nebraska.

329. Etheostoma cœruleum Storer.
Rainbow Darter.
Fluviatile.
Ontario, and Ohio and Mississippi valleys.

330. Etheostoma flabellare Rafinesque.
Fan-tailed Darter.
Fluviatile: living in swift streams.
Province of Quebec: ranging in the United States westward to Iowa and southward to southern States.

331. Boleichthys fusiformis Girard

Fusiform Darter

Lowland streams and ponds

Massachusetts westward to Minnesota, and southward to the Rio Grande; probably occurs in Canadian waters.

332. Boleichthys exilis Girard

Fluviatile

Known from Red River and upper Missouri River basin.*

333. Microperca punctulata Putnam

Least Darter

Clear, cold, weedy streams, and ponds

Ranges from Michigan, Wisconsin, and Minnesota, southward to Arkansas; perhaps occurs in Canadian waters.

334. Roccus chrysops† Rafinesque

White Bass

Lacustrine and fluviatile

St. Lawrence River and Great Lakes region, westward to Manitoba and Mississippi valley, and southward to Arkansas; recorded from Lake Oromocto, one of the head waters of the Magaguadavic River, New Brunswick‡ (Cox, 1895, after Adams).

335. Roccus lineatus Bloch. (Plate X, figures 118 and 119)

Striped Bass.

Anadromous; essentially a brackish water species

Atlantic coast of North America, from the Maritime Provinces to the Gulf of Mexico; ascends the Miramichi and St. Lawrence Rivers and tributaries; as well as "the Potomac to the Great Falls, and the other rivers of the Middle States, until it meets obstructions" (Jordan and Evermann); said to occur occasionally in Lake Ontario, and "has been taken at the mouth of the Niagara River"§ (Ramsay Wright); introduced into waters of the Pacific coast by the United States Fish Commission.

*"Specimens of a small darter obtained by Mr. Charles H. Bollman in Clam Lake, Michigan, may belong to this species." Jordan and Evermann.

†"This is doubtless the Silver Bass of Canada, the details of whose introduction into France, and successful propagation by M. Carbonnier, from 1877 to 1879, are recorded by that experimenter in the Bulletin of the Society of Acclimation for 1881." Goode.

‡Dr. Cox considers that the present occurrence of this species in Lake Oromocto is doubtful, and not only so, but that the record of Dr. Adams is open to question.

§"There is a record of an example taken in the Niagara River at Lewiston, but this may have been a misidentification of the white bass." Jordan and Evermann. "The White Bass or Striped Lake Bass, *Roccus chrysops* is often confounded with the Striped Bass which it closely resembles." Goode.

336. Morone americana Gmelin. (Plate X, figures 120 and 121.)
White Perch.
Anadromous, being essentially a brackish water species; often landlocked.
Atlantic coast of North America from the Gulf of St. Lawrence and Maritime Provinces to South Carolina; recorded as abounding "in the numerous lakes of Nova Scotia" (Knight, 1896, as *Labrax pallida*).

337. Cynoscion regalis Bloch and Schneider. (Plate X, figure 122.)
Common Weakfish.
Marine; on sandy shores.
Mr. S. F. Denton, taxidermist, Wellesley Farms, Mass., writes that he has mounted specimens which he understood from the sendets had been obtained at coasts of Nova Scotia; reputed range "Atlantic and Gulf coast of the United States from Cape Cod southward to Mobile" (Jordan and Evermann).

338. Cynoscion nobilis Ayres.
White Sea Bass.
Marine.
Vancouver Island, southward to coast of California.

339. Aplodinotus grunniens Rafinesque. (Plate X, figures 123 and 124.)
Fresh-water Drum; Lake Sheepshead.
Lacustrine and fluviatile.
Extends from Ontario, through the Great Lakes region, westward to Manitoba, and ranging through the Ohio and Mississippi valleys southward to Louisiana and Texas; also recorded from the Rio Usumacinta, Tabasco, southern Mexico.

340. Eques lanceolatus Linnæus.
Ribbon-fish.
Marine.
Recorded from Sherringham Point, British Columbia (specimen in Provincial Museum, Victoria); "West Indies, ranging northward to Pensacola" (Jordan and Evermann); certain warm seas.

341. Ronquilus jordani Gilbert.
Ronquil.
Marine.
Recorded from Departure Bay,* Vancouver Island, from Puget Sound, and from coast of Alaska.

342. Trichodon trichodon Tilesius.
Sand-fish.
Marine; burys in the sand of sandy shores.
British Columbia; ranges from coast of California to Bering Sea, and Kamchatka (Tilesius, 1811).

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*A specimen of this species was dredged at Departure Bay, Vancouver Island, near the Biological Station, by the late Rev. G. W. Taylor, the then Curator of the station, and the Author, in the Autumn of 1908, being a record in Canadian waters.

343. Stenotomus chrysops Linnæus
Porgy: Common Scup.
Marine.
Possibly occurs in St. Mary's Bay, Nova Scotia* (Knight, 1866, as *Pagrus argyrops*): ordinarily ranges from Cape Cod to South Carolina, being "especially abundant northward."

344. Archosargus probatocephalus Walbaum.
Sheepshead.
Marine.
Said to be occasional in St. John's Harbour, New Brunswick (Cox, 1895, as *Diplodus probatocephalus*): ranges ordinarily from Cape Cod to Florida Keys and the Gulf of Mexico.

345. Cymatogaster aggregatus Gibbons.
Sparada: Viviparous Perch.
Marine: in shallow water.
British Columbia: ranges from Alaska to Lower California, Mexico.

346. Brachyistius frenatus Gill.
Surf-fish.
Marine, in shallow water
Ranges from Vancouver Island to Lower California.

347. Amphistichus argenteus Agassiz.
Surf-fish.
Marine: in shallow water
Ranges from entrance to Straits of Juan de Fuca at Cape Flattery, State of Washington, southward to coast of California: given here as it ought to be found on the British Columbian side of the Straits.

348. Embiotoca jacksoni Agassiz.
Common Surf-fish: Blue Surf-fish.
Marine.
Ranges from Vancouver Island to Todos Santos Bay.

349. Tæniotoca lateralis Agassiz. (Plate XIII, figures 158 and 159).
Striped Surf-fish.
Marine.
Ranges from British Columbia to coast of California.

350. Phanerodon furcatus Girard.
White Surf-fish.
Marine.
Ranges from British Columbia to coast of California.

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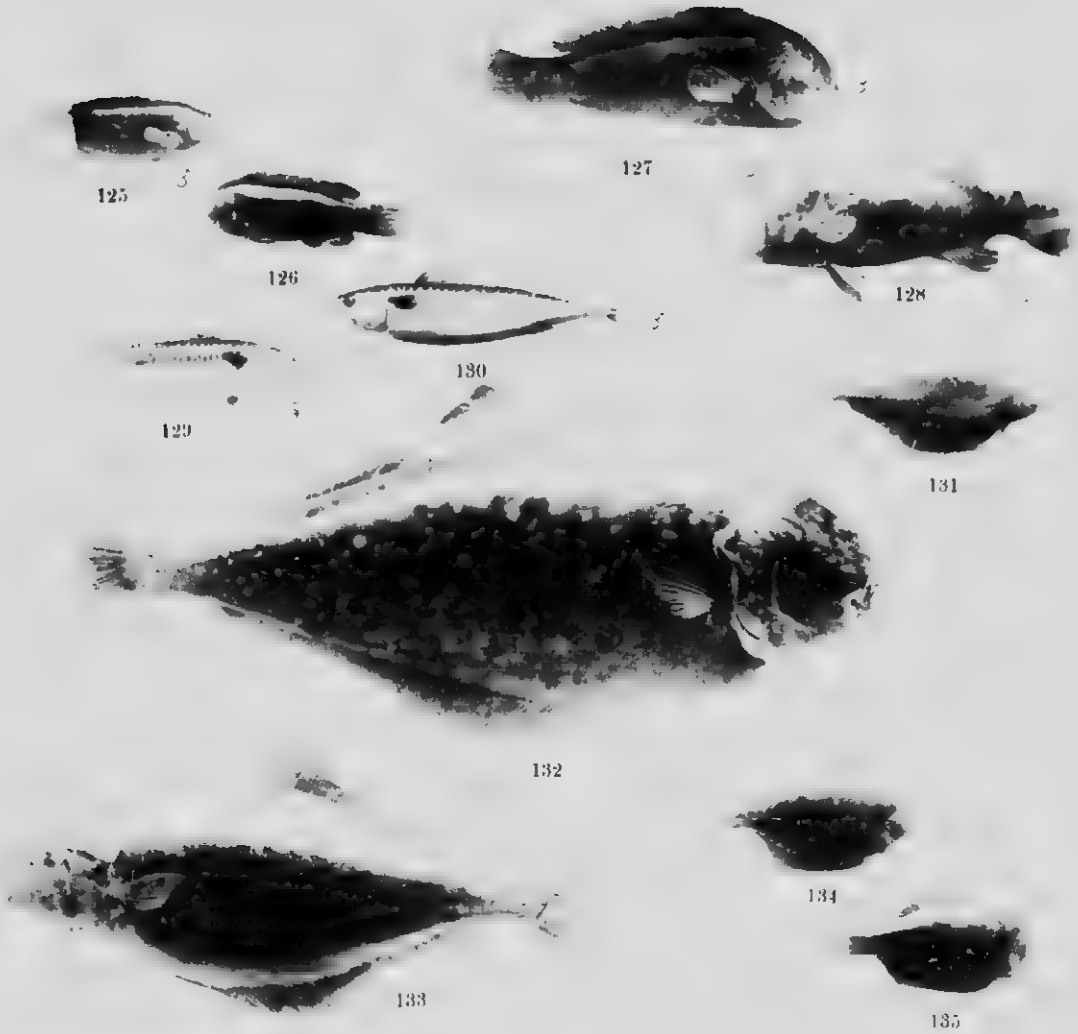
*"This fish is seldom found north of Cape Cod. About the year 1833, an attempt was made to introduce them [sic] into the waters north of the Cape, but with no success, the water proving too cold to enable them to breed there. The only authority that the writer possesses as to their existence on the coast of Nova Scotia, is, the Official Circular from Mr. Gidney, the collector of Sandy Cove, in which it is stated that *porgies* are occasionally seen in St. Mary's Bay. If they are the true *porgies* they have probably strayed from a warmer latitude in pursuit of food." Knight

PLATE XI.

125 126	Tautogolabrus adspersus (Cunner)
127 128	Tautoga onitis (Tautog)
129 130	Scomber scombrus (Common Mackerel)
131	Hippoglossoides platessoides (Sand Dab)
132	Hippoglossus hippoglossus (Halibut)
133	Hippoglossus hippoglossus (Halibut—specimen with the eyes on the left side of the head, an abnormal but an occasional character)
134 135	Pseudopleuronectes americanus (Winter Flounder)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351. Damalichthys argyrosomus Girard. (Plate XIII, figures 160 and 161).
Porgee.
Marine: "entering the inlets in thousands."
Pacific Coast from British Columbia and Puget Sound to Lower California

352. Tautogolabrus adspersus Walbaum. (Plate XI, figures 125 and 126).
Cunner.
Marine: in harbours and bays.
Atlantic coasts of North America extending from Labrador and Newfoundland to Sandy Hook, and embracing the Gulf of St. Lawrence, Gaspe Bay, Maritime Provinces, and New England States.

353. Tautoga onitis Linnaeus. (Plate XI, figures 127 and 128).
Tautog: Black-fish.
Marine: among rocks and kelp.
Atlantic coasts of North America from the Maritime Provinces to South Carolina.

354. Scomber scombrus Linnaeus. (Plate XI, figures 129 and 130).
Common Mackerel.
Marine.
Both sides of North Atlantic: on the American side from Labrador to Cape Hatteras, North Carolina; and on the European side from Norway to the Mediterranean and Adriatic.

355. Scomber japonicus Houttuyn.
Chub Mackerel.
Marine.
Widely distributed in the Atlantic and Pacific Oceans: extending as far northward as British Columbia, Labrador, and England: abounds off the coast of California, in the Mediterranean, and "everywhere in Japan" (Jordan, 1905).

356. Gymnosarda pelamis Linnaeus.
Oceanic Bonito.
Pelagic.
Warm seas; ranging northward on the western side of the Atlantic to the Bermudas and Cape Cod: recorded from the Atlantic coast of Canada (Whiteaves, 1886, as *Euthynnus pelamys*):* also recorded from coast of California: coasts of Europe,—including coasts of Britain (Yarrell, 1859, as *Thynnus pelamys*).

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*The small specimen upon which this record is based is in a very poor state of preservation and hard to determine, but judging by what can be made out from the ragged and broken condition of the fins and their rays, and the otherwise mutilated condition of the specimen it does not appear to be this species. Certain of its characters, some of them more or less obscure, are as follows.—Maxillary not reaching the posterior border of the orbit: pectorals about mid-way between dorsal and ventral outlines: caudal deeply forked. anterior dorsal elongate with 20 rays: posterior dorsal and anal short: 8 dorsal and 7 anal finlets. many other characters obscured, with little but the flesh remaining on the left side, and skin of the right scaleless, except very small scales, forming a corselet, which does not appear to extend beyond the pectoral fin. It would appear to agree more closely with *Sarda* than with *Gymnosarda*.

357. Thunnus thynnus Linnæus.

Tunny; Horse Mackerel.

Pelagic.

Occurs on the Atlantic coast of Canada and the United States, around the coast of Newfoundland and at the Lofoden Islands; also on the Pacific coasts as far northward as California and Japan; "abundant in the Mediterranean and ranging to the south coast of England and to Tasmania" (Günther, 1880); Yarrell (1859) says it has "been taken among the islands west and north of Scotland" and at a few other Scottish localities, and mentions "two instances of its having been taken on the Irish coast"; occurs also in the Indian Ocean (Boulenger, 1910).

358. Germo alalunga Gmelin.

Longfinned Albacore.

Pelagic.

Widely distributed, but rare on the Atlantic coast of America; a specimen obtained at Banquereau at a depth of 300 fathoms in the summer of 1878 (Jones, 1879, as *Orcynus alalunga*); occurs on the Pacific coast northward to California, and abundant at the Santa Barbara Islands; "very common in the Mediterranean."

359. Sarda sarda Bloch.

Bonito.

Pelagic.

Abundant in Atlantic Ocean northward to Cape Cod; occasional on coast of Nova Scotia; "a very rare fish in these waters" (Piers, 1902); "a young example captured at the mouth of Halifax Harbour" (Jones, 1879, as *S. pelamys* if such signifies this species); inhabits the open ocean, and occurs on both sides of the Atlantic.

360. Sarda chilensis Cuvier and Valenciennes.

California Bonito.

Marine.

British Columbia; ranging in the Pacific Ocean from Patagonia to Japan.

361. Escolar violaceus Bean.

Escolar.

Bathybial.

Type specimen* from La Have Bank, off Nova Scotia (Bean, 1887, as *Thyrsitops violaceus*); "lives in the abysses of the Gulf Stream" (Jordan, 1905).

362. Benthodesmus atlanticus Goode and Bean.

Marine.

"One specimen taken from the stomach of a halibut caught on the western edge of the Grand Banks of Newfoundland in 80 fathoms" (Jordan and Evermann).

*This specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CXXXV, and the specimen of the following species (*Benthodesmus atlanticus*) in pl. CXXXVI.

363. Xiphias gladius Linnæus.
Sword-fish.
Pelagic.
Atlantic Ocean, and on both its sides: Maritime Provinces and Newfoundland Banks, occurs also in the Pacific Ocean, and in the Mediterranean; and according to Goode (1888) enters the Baltic; otherwise distributed in many seas, being, by it said, "of nearly world-wide distribution" and "occurring occasionally on the coasts of Great Britain and Ireland" (Boulenger, 1910); and also occurring at the South Sea Islands (Günther, 188); yet according to Jordan (1905) "rare off the California coast" and scarcely known in Japan."

364. Naucrates ductor Linnæus.
Pilot-fish.
Pelagic.
"Known in all tropical and temperate seas" (Günther, 1880); "occasionally appears on our [British] coasts, accompanying large sharks and ships" (Boulenger, 1910); "our specimen was brought to the Museum [at Halifax] for identification; it must have been caught near our harbour"- (Honeyman, 1886); "occasional on our Atlantic coast from Cape Cod to the West Indies" (Jordan and Evermann).

365. Seriola zonata Mitchill.
Rudderfish; Banded Seriole.
Marine.
A specimen "was caught on the banks south of Devil's Island" off Nova Scotia (Honeyman, 1886); ranges ordinarily from Cape Cod to Cape Hatteras.

366. Decapterus macarellus Cuvier and Valenciennes.
Mackerel Shad.
Marine.
Chedabucto Bay, Canso, Nova Scotia;* "warm parts of the Atlantic, straying northward to Cape Cod; scarce on our coast" (Jordan and Evermann).

367. Trachurops crumenophthalmus Bloch.
Goggler.
Marine.
Recorded from Canso, Nova Scotia,† ordinarily ranges on the Atlantic and Pacific‡ coasts of tropical America, extending occasionally northward to Cape Cod; abundant at the West Indies, the Bermudas, the Hawaiian Islands, and on the west coast of Mexico; occurs besides in most tropical seas, and on the coast of Africa; "in the Indian Ocean, the Red Sea, and off the coast of Guinea" (Goode, 1888, as *Caranx crumenophthalmus*).

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*"Two specimens of this species were caught in the Chedabucto Bay trap-nets. They were wholly unfamiliar to the fishermen, and are apparently rarely seen at Canso." Cornish.

†"Two specimens were taken in the trap-nets by local fishermen, to whom the fish was unknown before. The specimens were found to differ from the description of Drs. Jordan and Evermann in two respects: there are no scales on the cheeks, and along the side, a bright golden yellow band passes longitudinally below the lateral line anteriorly; but about midway it crosses and then passes back above the lateral line." Cornish. Mr. Cornish queries the species.

‡"We are unable to see any difference between the Pacific Coast form *Trachurus brachychirus*, Gill, and the ordinary *crumenophthalmus*." Jordan and Evermann.

368. Caranx crysos Mitchill.
Hardtail: Yellow Mackerel.
Marine.
According to Jones, not uncommon in the waters of Nova Scotia (1879, as *Paratractus pisquatus*); ranges southward to coast of Brazil; according to Evermann and Marsh "one of the best game-fishes of Porto Rico."

369. Selene vomer Linnæus.
Moonfish.
Marine.
"Specimens are occasionally taken in shore waters" of Nova Scotia (Jones, 1879, as *Argyriosus vomer*); and "the young of it is said, in one or two instances, to have been found as far north as Halifax" (Honeyman, 1886, as *S. argentea*); ordinarily Atlantic and Pacific* coasts of America "from Cape Cod to Brazil, and from California to Peru"; included among the fishes of Porto Rico "on the authority of Poey and Stahl" (Evermann and Marsh, 1899).

370. Pomatomus saltatrix Linnæus.
Bluefish.
Marine.
"Inserted on the authority of Dr. Bernard Gilpin, who has seen specimens taken on this [Nova Scotian] coast" (Jones, 1879); widely distributed: Atlantic and Indian Oceans, and occasionally occurring in the Mediterranean.

371. Brama raii Bloch.
Pomfret.
Pelagic.
British Columbia and Puget Sound, southward to Santa Catalina; Grand Banks, Newfoundland, and the Bermuda Islands; coasts of Europe, including the British Isles, and northward to the Faröe Islands; also occurs on the coast of Japan.

372. Atheresthes stomias Jordan and Gilbert.
Arrow-toothed Halibut.
Marine.
British Columbia; ranges from coast of California northward to Bering Sea.

373. Reinhardtius hippoglossoides Walbaum.
Greenland Halibut.
Marine.
Arctic regions, extending southward to the Grand Banks and to Finland; coasts of Greenland;† Fortune Bay, Newfoundland; recorded from Canso, Nova Scotia (Cornish, 1901 or 1902); "occasional specimens are brought us from the northern fishing banks [of Nova Scotia], but it is more common off Newfoundland" (Jones, 1879, as *Platysomatichthys hippoglossoides*).

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*"The Pacific Coast form *brevoortia pacificus*, is not evidently different from *Selene vomer*." Jordan and Evermann.

†"It is said to be found chiefly in the ice-fiords and between the great ice fields in Northern Greenland." Jordan and Evermann.

374. Hippoglossus hippoglossus Linnæus. (Plate XI, figures 132 and 133).
Halibut.
Marine.
Northern seas: ranging from the Arctic regions southward: Atlantic and Pacific coasts of British North America and United States: as far south at least as Montauk Point and the Farallone Islands: occurs plentifully in Bering Sea northward to Bering Straits "along the entire west coast of Greenland Iceland and north to Spitzbergen in latitude 80°" (Goode): numerous seas of northern Europe southward at least to the coast of Fran e.

375. Lyopsetta exilis Jordan and Gilbert.
Marine.
Ranges from coast of California, at least as far north as Puget Sound: probably occurs in waters of British Columbia.

376. Eopsetta jordani Lockington.
California Sole.
Marine.
British Columbia and Puget Sound southward to coast of California.

377. Hippoglossoides platessoides Fabricius. (Plate XI, figure 131).
Sand Dab: Rough Dab.
Marine.
Both sides of North Atlantic: ranging on the American side from Greenland southward to coast of Massachusetts, and embracing Labrador, doubtless Newfoundland, Gulf of St. Lawrence, Gaspe Bay, Maritime Provinces, La Have Bank, and New England States; and on the European side from the Scandinavian coast southward to the coast of England.

378. Hippoglossoides elassodon Jordan and Gilbert.
Marine.
British Columbia: range from Bering Sea southward to Puget Sound: also occurs on coast of Kamchatka.

379. Psettichthys melanostictus Girard.
Sole.
Marine: near the shore.
British Columbia: ranges from coast of Alaska southward to coast of California.

380. Pleuronichthys cœnosus Girard.
Muddy Flounder.
Marine.
British Columbia and Puget Sound: ranging from coast of California to coast of Alaska.

381. Parophrys vetulus Girard.
Sharp-nosed Flounder.
Marine.
British Columbia: ranges from Santa Barbara, California, to coast of Alaska.

382. Inopsetta ischyra Jordan and Gilbert
Marine
Recorded from Puget Sound; given here as likely to occur in British Columbia

383. Isopsetta isolepis Lockington
Marine
Range known to extend from Puget Sound south to Point Concepcion; doubtless occurs in British Columbia

384. Lepidopsetta bilineata Ayres. (Plate XIII, figure 153)
Two-lined Flounder
Marine
British Columbia; ranges from coast of California to Bering Straits; "in Bering Sea it far outnumbers all other flounders" (Jordan and Evermann)

385. Limanda ferruginea Storer. (Plate XII, figures 148 and 149).
Rusty Dab
Marine
Maritime Provinces and Gaspe Bay; ranges from coast of Labrador southward to State of New York

[redacted]. Limanda aspera Pallas
Alaska Dab
Marine
Ranges from Vancouver Island northward to Bering Sea, and from Siberia southward to Sea of Okhotsk.

387. Pseudopleuronectes americanus Walbaum. (Plate XI, figures 134 and 135).
Winter Flounder; Common Flatfish
Marine.
Ranges from the coast of Labrador southward to South Carolina, and embracing Gulf of St. Lawrence, Maritime Provinces, and New England States

388. Liopsetta putnami Gill
Eel-back Flounder; Smooth Flounder.
Marine.
Atlantic coast of North America, ranging from beyond Labrador southward to Cape Cod, its records within the limits of its range appear to be somewhat local; recorded from Labrador; Tignish, Prince Edward Island (Cornish, as *Lepidopsetta putnami*), Grand Manan; and represented in the United States National Museum, and in the Museum of Comparative Zoology, by specimens from various localities on the New England coast.

[redacted]. Platichthys stellatus Pallas. (Plate XIII, figure 150).
Starry Flounder.
Marine; in shallow water; sometimes ascends rivers.
British Columbia; widely distributed from the Arctic Ocean southward to the Amur River, and Pacific coasts of Asia; abounds in Bering Sea.

390. Microstomus pacificus Lockington
Slippery Sole
Marine
British Columbia: ranges from coast of California northward to the Aleutian Islands

391. Glyptocephalus cynoglossus Linnæus
Craig Fluke, Pole Flounder
Marine
Both sides of North Atlantic: "abundant in Bedford Basin, the inner expansion of Halifax Harbour" (Goode, 1888); recorded from Chedabucto Bay, Nova Scotia (Cornish, 1901 or 1902); La Have fishing bank (Jones, 1879); on the American side ranges southward at least to coast of Massachusetts, and northward according to Goode (1888 "it ranges nearly to Greenland"); occurs also on certain European coasts

392. Glyptocephalus zachirus Lockington
Long-finned Sole
Marine
British Columbia: ranges from coast of California northward to Bering Sea

393. Lophosetta maculata Mitchill

ERRATUM

For 393 Lophosetta maculata read 393 Lophopsetta maculata.

394. Citharichthys sordidus Girard
Soft Flounder.
Marine.
Ranges from British Columbia southward to the Mexican boundary

395. Gobius nicholsii Bean
Goby.
Marine.
Coast of British Columbia.

396. Lepidogobius lepidus Girard.
Goby.
Marine.
Ranges from Vancouver Island to Lower California

397. Quietula y-cauda Jenkins and Evermann.
Goby.
Lives in mud flats at mouths of rivers and lagoons.
Ranges from British Columbia to Guaymas, Sonora.

398. Clevelandia ios Jordan and Gilbert.
Goby.
Marine.
British Columbia and Puget Sound.

382. Inopsetta ischyra Jordan and Gilbert.
Marine.
Recorded from Puget Sound; given here as likely to occur in British Columbia.

383. Isopsetta isolepis Lockington.
Marine.
Range known to extend from Puget Sound south to Point Concepcion; doubtless occurs in British Columbia.

384. Lepidopsetta bilineata Ayres. (Plate XIII, figure 153.)
Lyconect Flounder.
Marine.
British Columbia: "ranges from coast of California to Bering Straits; in Bering Sea it far outnumbers all other flounders" (Jordan and Evermann).

385. Limanda ferruginea Storer. [illegible] (Figures 148 and 149.)
Rusty Dab.
Marine.
Maritime Provinces and Gaspe Bay; [illegible] of New York.

386. Limanda aspera Pallas.
Alaska Dab.
Marine.
Ranges from Vancouver Island northward to Bering Sea, and from Siberia southward to Sea of Okhotsk.

387. Pseudopleuronectes americanus Walbaum. (Plate XI, figures 134 and 135.)
Winter Flounder; Common Flatfish.
Marine.
Ranges from the coast of Labrador southward to South Carolina, and embracing Gulf of St. Lawrence, Maritime Provinces, and New England States.

388. Liopsetta putnami Gill.
Eel-back Flounder; Smooth Flounder.
Marine.
Atlantic coast of North America, ranging from beyond Labrador southward to Cape Cod; its records within the limits of its range appear to be somewhat local; recorded from Labrador; Tignish, Prince Edward Island (Cornish, as *Lepidopsetta putnami*); Grand Manan; and represented in the United States National Museum, and in the Museum of Comparative Zoology, by specimens from various localities on the New England coast.

389. Platichthys stellatus Pallas. (Plate XIII, figure 150.)
Starry Flounder.
Marine; in shallow water; sometimes ascends rivers.
British Columbia; widely distributed from the Arctic Ocean southward to the Amur River, and Pacific coasts of Asia; abounds in Bering Sea.

390. Microstomus pacificus Lockington.
Slipper's Sole.
Marine.
British Columbia; ranges from [illegible] Aleutian Islands.

391. Glyptocephalus cynoglossus Linnaeus.
Craig Fluke; Pole Flounder.
Marine.
Both sides of North Atlantic; abundant in [illegible] Harbour (Goode, 1888); [illegible] Nova Scotia [illegible] 1901 or 1902; La Have fishing bank (Jones, 1879); [illegible] ward at least to coast of Massachusetts; [illegible] (Goode, 1888); [illegible] ranges nearly to Greenland; [illegible] European coasts.

392. Glyptocephalus zachirus Lockington.
Long-finned Sole.
Marine.
British Columbia; ranges from coast of California northward to Bering Sea.

393. Lophosetta maculata Mitchill.
Window Pane.
Marine.
Maritime Provinces; ranges in the United States from Maine to South Carolina.

394. Citharichthys sordidus Gilbert.
Soft Flounder.
Marine.
Ranges from British Columbia southward to the Mexican boundary.

395. Gobius nicholsii Bean.
Goby.
W[illegible]
[illegible] British Columbia.

396. Lepidogobius lepidus Girard.
Goby.
Marine.
Ranges from Vancouver Island to Lower California.

397. Quietula y-cauda Jenkins and Evermann.
Goby.
Lives in mud flats at mouths of rivers and lagoons.
Ranges from British Columbia to Guaymas, Sonora.

398. Clevelandia ios Jordan and Gilbert.
Goby.
Marine.
British Columbia and Puget Sound.

399. Remora remora Linnæus.
Remora: Sucking-fish.
Marine: attaching itself to sharks, vessels, or other objects.
Recorded from Atlantic coast of Canada (Whiteaves, 1886, as *Remora squalipeta* -specimen in Canadian Fisheries Museum): from Sechart, British Columbia (specimen in Provincial Museum, Victoria): from the British Islands* (Yarrell, 1859, as *Echeneis remora*): ordinarily ranges in warm seas in North America extending northward to the coasts of the States of New York and California: abounds in the West Indies.

400. Sebastes marinus Linnæus. (Plate XII, figures 136 and 137).
Snapper: Rose-fish.
Marine.
Both sides of the Atlantic Ocean: on the American side ranging from Greenland and Labrador southward to off the coast of New Jersey, and embracing the Maritime Provinces and Newfoundland: coasts of Europe northward to Iceland and Spitzbergen and southward to the British Channel.

401. Sebastolobus alascanus Bean.
Bathybial.
British Columbia: coast of California to Alaska and Bering Sea.

402. Sebastolobus altivelis Gilbert.
Bathybial.
British Columbia: Alaskan Peninsula, and off the coast of California.

403. Sebastodes paucispinis Ayres. (Plate XIII, figure 162).
Jack-fish: Bocaccio.
Marine.
3 specimens, obtained by Mr. S. F. Denton, Taxidermist, from British Columbia, in the Canadian Fisheries Museum: a specimen listed in 1898 by Mr. John Fannin, at that time Curator of the Provincial Museum, Victoria, as belonging to the collection of that museum; but without locality:† ordinarily ranges on coast of California.

404. Sebastodes melanops Girard. (Plate XIV, figures 177 and 178).
Black Sea Bass.
Marine.
Vancouver Island: ranges from Monterey to Kadiak Island, Alaska.

405. Sebastodes mystinus Jordan and Gilbert. (Plate XIV, figures 175 and 176).
Black Rock-fish: Priest-fish.
Marine: in rather shallow water.
Vancouver Island to coast of California.

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*"Though natives of warmer latitudes, it is not surprising that they should occasionally come into precincts of the channel sticking on the bottoms of ships or transported by cosmopolite sharks." Yarrell.

†Mr. Kermode, the present Curator, considers that Mr. Fannin was in error in listing this species, as no specimen can be found in the museum.

PLATE XII.

136–137. Sebastes marinus (Snapper or Rosefish)

138–139. Myoxocephalus octodecimspinosus (Common Sculpin)

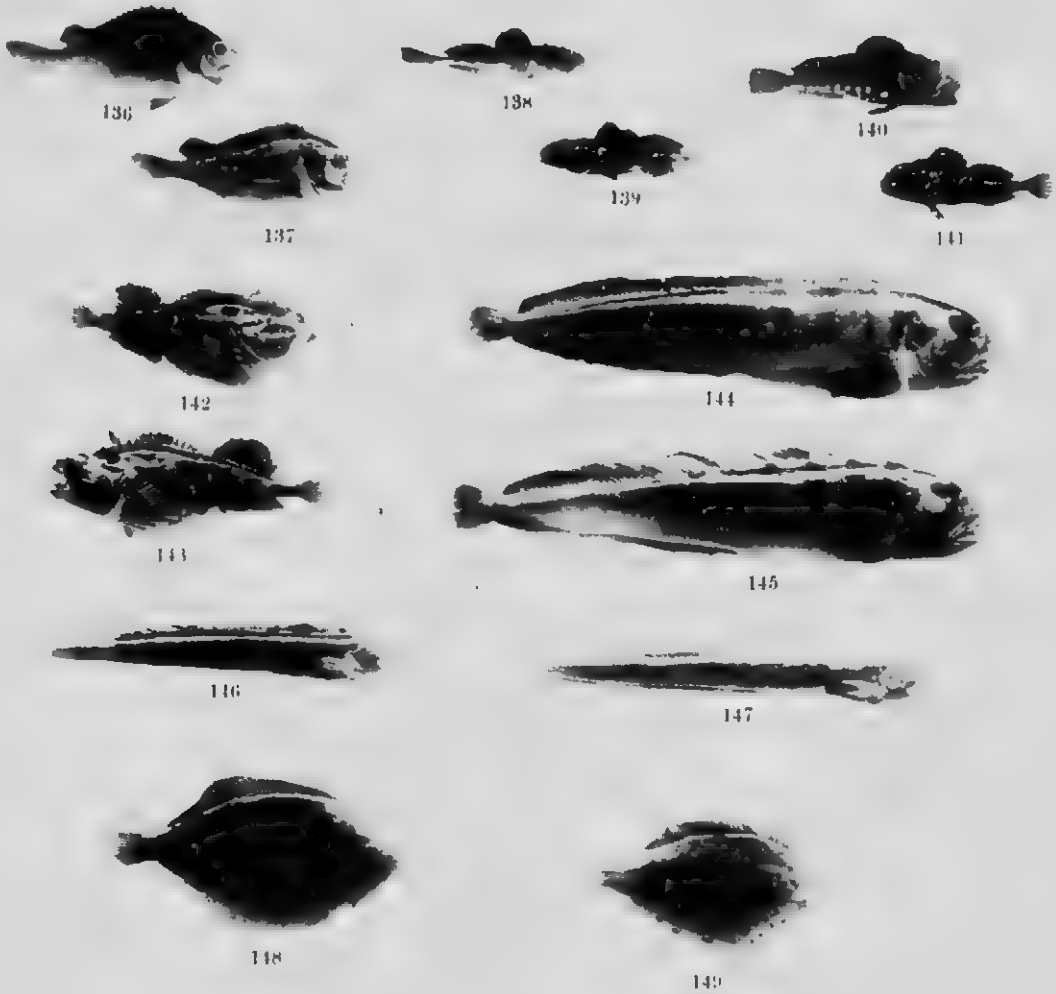
140–141. Myoxocephalus grœnlandicus (Daddy Sculpin)

142–143. Hemitripterus americanus (Sea Raven

144–145. Anarhichas lupus (Wolf-fish)

146–147. Zoarces anguillaris (Eel Pout)

148–149 Limanda ferrugines (Rusty Dab)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406. Sebastodes brevispinis Bean.
Marine.
Known from a specimen from Hassler Harbour, southeastern Alaska: may possibly be found in waters of British Columbia.

407. Sebastodes alutus Gilbert.
Marine.
British Columbia: ranges from coast of California to Bering Sea.

408. Sebastodes pinniger Gill.
Orange Rock-fish.
Marine.
Recorded from British Columbia: ranges southward, including Puget Sound, to coast of California.

409. Sebastodes introniger Gilbert.
Marine: in deep water.
British Columbia: ranges from the Santa Barbara Islands to the Aleutian Islands.

410. Sebastodes ruberrimus Cramer. (Plate XIV, figures 179 and 180).
Red Rock-fish: Tambor.
Marine.
Ranges from British Columbia and Puget Sound southward to coast of California.

411. Sebastodes auriculatus dallii Eigenmann and Beeson.
Brown Rock-fish.
Marine: enters Bays.
Ranges from British Columbia to Point Reyes.

412. Sebastodes caurinus Richardson.
Marine.
Ranges from British Columbia and Puget Sound to coast of Alaska.

413. Sebastodes maliger Jordan and Gilbert.
Yellow-backed Rock-fish.
Marine.
British Columbia: ranges from coast of California to coast of Alaska.

414. Sebastodes chrysomelas Jordan and Gilbert. (Plate XIII, figures 163 and 164).
Black and Yellow Rock-fish.
Marine.
Ranges from British Columbia and Puget Sound to coast of California.

415. Sebastodes nebulosus Ayres.
Yellow Spotted Rock-fish.
Marine.
Ranges from Vancouver Island to coast of California.

416. Sebastodes nigrocinctus Ayres. (Plate XIII, figures 165 and 166).
Black Banded Rock-fish.
Marine: in deep water.
Ranges from Vancouver Island to coast of California.

417. Anoplopoma fimbria Pallas. (Plate XIII, figures 167 and 168).
Coal fish: Skil.
Marine.
Pacific coast of Canada from Straits of Juan de Fuca to Queen Charlotte Islands: entire range from coast of California to Aleutian Islands.

418. Hexagrammos decagrammus Pallas. (Plate XIV, figures 169 and 170).
Boregat: Starry Rock Trout.
Marine.
British Columbia: ranges from Point Concepcion to Kadiak Island.

419. Hexagrammos stelleri Tilesius.
Greenling.
Marine.
British Columbia: ranges from coast of California to Aleutian Islands and Kamchatka.

420. Hexagrammos superciliosus Pallas.
Red Rock-trout.
British Columbia: ranges from coast of California to Bering Sea.

421. Ophiodon elongatus Girard. (Plate XIV, figure 174).
Cultus Cod.
Marine.
British Columbia: ranges from Santa Barbara to coast of Alaska.

422. Zaniolepis latipinnis Girard.
Broad-fin Cod.
Marine.
British Columbia and Puget Sound south to coast of California.

423. Oxylebius pictus Gill.
Painted Cod.
Marine: lives among sea-weeds on rocky shores.
British Columbia and Puget Sound southward to coast of California.

424. Jordania zonope Starks.
Marine.
British Columbia and Puget Sound.

425. Scorpænichthys marmoratus Ayres. (Plate XIV, figures 171-173).
Cabezon.
Marine.
Ranges from British Columbia and Puget Sound to coast of California.

426. Chitonotus pugetensis Steindachner.
Marine.
British Columbia and Puget Sound to coast of California.

427. Icelinus strabo Starks.
Marine.
British Columbia and Puget Sound.

428. Astrolytes fenestralis Jordan and Gilbert.
Marine.
British Columbia and Puget Sound.

429. Artedius lateralis Girard.
Marine: in rocky pools.
British Columbia and Puget Sound to San Luis Obispo.

430. Artedius asperulus Starks.
Marine.
British Columbia and Puget Sound.

431. Axyrias harringtoni Starks.
Marine.
British Columbia and Puget Sound.

432. Artediellus atlanticus Jordan and Evermann.
Marine.
Ranges from coast of Labrador to Cape Cod: recorded from off Sable Island (Kendall, 1909), and from the fishing banks off Nova Scotia (Jones, 1879, as *Centridermichthys uncinatus*).*

433. Ruscarius meanyi Jordan and Starks.
Marine.
British Columbia and Puget Sound.

434. Icelus bicornis† Reinhardt.
Marine.
Circumpolar: Greenland and Davis Straits: also Labrador, and southward to Cape Cod: Alaska, Finland, and Spitzbergen to northern Russia.

435. Radulinus asprellus Gilbert.
Marine.
Puget Sound and coasts of the States of Washington and Oregon: given here as likely to occur in British Columbia.

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*In all probability *Centridermichthys uncinatus* in Jones' "List of the Fishes of Nova Scotia" is referable to this species.

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†*I. bicornis* and *I. hamatus* are treated here as one and the same species; the name used being *I. bicornis*. "Circumpolar if all specimens named *bicornis* and *hamatus* belong to one species which is doubtful." "According to Dr. Lutken, *Cottus bicornis* is identical with *Icelus hamatus*, this opinion being based on a drawing of *bicornis* by Reinhardt." Jordan and Evermann.

436. Asemichthys taylori* Gilbert.

Marine.

"Type, a female, 55 mm. long, from Departure Bay, Vancouver Island; collected by the Rev. G. W. Taylor" (Gilbert, published 1912); only specimen known.

437. Triglops pingeli Reinhardt.

Marine.

North Atlantic: at the north of its range extending from Greenland to Spitzbergen: on the American side, embracing Labrador, doubtless Newfoundland, Gulf of St. Lawrence, and Maritime Provinces, southward to Cape Cod; and on the European side to Christiansund.

438. Triglops beani Gilbert.

Marine.

Ranges from British Columbia and Puget Sound northward to coast of Alaska and Bering Sea; and occurring on both sides of the Aleutian Islands.

439. Prionistius macellus Bean.

Marine.

Ranges from British Columbia northward to coast of Alaska, including the Aleutian Islands.

440. Hemilepidotus hemilepidotus Tilesius.

Red Sculpin.

Marine.

British Columbia and Puget Sound: ranging from coast of California northward to coast of Alaska, hence westward to Kamchatka.

441. Enophrys bison Girard.

Stone Sculpin: Buffalo Sculpin.

Marine.

British Columbia and Puget Sound: ranging from coast of California northward to coast of Alaska.

442. Cottus asper Richardson.

Prickly Bull-head.

Fluviatile: abounding in cold mountain streams.

British Columbia, including Vancouver Island; and the States of Washington and Oregon.

443. Cottus gulosus Girard.

California Miller's Thumb.

Fluviatile: in coastwise streams.

Recorded from Shawnigan Lake, British Columbia; and from the coast range of California.

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*This species is the type of a new genus. "I take pleasure in naming this interesting species for its discoverer, Rev. G. W. Taylor, Curator of the Biological Station at Nanaimo, B.C." Gilbert.

444. Cottus semiscaber Cope.
Rocky Mountain Bull-head.
Fluviatile: in clear streams.
Both slopes of the Rocky Mountain region: ranging from the Fraser River system, British Columbia, southward to New Mexico: "its eastern and northern limits not well ascertained" (Jordan and Evermann).

445. Cottus ictalops Rafinesque.
Blop.
Lacustrine and fluviatile: clear lakes and rocky brooks, and limestone springs: enters caves.
Provinces of New Brunswick, Quebec, and Ontario: St. Lawrence River and Great Lakes region: extending in the United States from the eastern States to the Dakotas and southward to southern States.

446. Cottus ricei Nelson.
Lacustrine.
Recorded from Lakes Ontario and Michigan.

447. Cottus onychus* Eigenmann and Eigenmann.
Fluviatile.
Recorded from Bow River, Calgary, Alberta.

448. Cottus pollicaris Jordan and Gilbert.
Olivaceous Miller's Thumb.
Lacustrine.
Recorded from Manitoba (Prince, 1909); and from off Racine, Lake Michigan, Wisconsin (Jordan and Gilbert, 1882, as *Uranidea pollicaris*).

449. Cottus cognatus Richardson.
Great-Bear-Lake-Bullhead.
Lacustrine.
Great Bear Lake, Mackenzie District (Richardson, 1836); Lake Bennett, British Columbia (Evermann and Goldsborough, 1907); Labrador† (Kendall, 1909).

450. Cottus aleuticus Gilbert.
Fluviatile, and in brackish water.‡
Recorded from Departure Bay, Vancouver Island, and "very abundant in the small streams passing through the village of Iliuliuk, Unalaska" —"probably the *Uranidea microstoma* of Lockington, based on specimens collected near St. Paul, Kadiak"—"extends southward in the Coast Range to Monterey" (Jordan and Evermann).

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*"Not seen by us and perhaps not different from *Cottus pollicaris*." Jordan and Evermann.

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†"Two specimens collected in North West River, July 27, are doubtfully identified as this species." Kendall. Recorded also from Labrador by Bowdoin in 1891, but queried by Kendall.

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‡"A specimen transferred to the salt water aquarium on the *Albatross* seemed to suffer no inconvenience from the change of water and lived for several days." Jordan and Evermann.

451. Cottus philonips Eigenmann and Eigenmann.
Fluviatile.
Recorded from Kicking Horse River, Field, British Columbia: Fraser River Basin.

452. Cottus spilotus Cope.
Fluviatile.
Recorded from Hudson Bay region; and from Grand River at Grand Rapids, Michigan.

453. Uranidea bendirei Bean.
Fluviatile.
Recorded from the States of Washington, Oregon, and Idaho; given here owing to its occurrence so close to our border.

454. Uranidea franklini* Agassiz.
Franklin's Sculpin.
Lacustrine.
North and east shores of Lake Superior (Agassiz, 1850, as *Cottus franklini*).

455. Uranidea gracilis Heckel.
Miller's Thumb; Blop.
Lacustrine and fluviatile.
Provinces of Quebec and New Brunswick, and Labrador; State of New York and New England States.

456. Uranidea formosa† Girard.
Lake Miller's Thumb.
Lacustrine and fluviatile.
Recorded from Madawaska River, New Brunswick (Cox, 1895); also recorded from Lake Ontario, off Oswego, State of New York, from a mutilated specimen from the stomach of a fresh water ling (Girard, 1850, as *Cottus formosa*).

457. Myoxocephalus æneus Mitchill.
Grubby; Pigmy Sculpin.
Marine; amongst sea-weeds near the shore.
Ranges from the Bay of Fundy to the coast of the State of New York.

458. Myoxocephalus scorpioides Fabricius.
Arctic Sculpin.
Marine.
Arctic regions of America; recorded from coasts of Labrador and Greenland.

459. Myoxocephalus scorpius Linnæus.
European Sculpin.
Marine.
Arctic regions; mentioned by Jones as being very common in Nova Scotia (1879, as *Cottus scorpius*); recorded from Labrador, from Gaspe Bay (Stafford, 1905-1906, as *Acanthocottus scorpius*, if such signifies this species) and from Eastport, Maine; occurs in northern seas of Europe and Asia, and on coasts of the British Islands.

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*"Perhaps not distinct from *Cottus* [*Uranidea*] *gracilis*." Jordan and Evermann.

†"A doubtful species." Jordan and Evermann.

460. **Myoxocephalus grœnlandicus*** Cuvier and Valenciennes. (Plate XII, figures 140 and 141).
Daddy Sculpin.
Marine.
Ranges from Greenland, and embracing Labrador, doubtless Newfoundland, and the Maritime Provinces, southward to the State of New York.

461. **Myoxocephalus octodecimspinosus** Mitchill. (Plate XII, figures 138 and 139).
Common Sculpin; Long-spined Sculpin.
Marine.
Atlantic coast of North America, ranging from Labrador to Virginia, and embracing the Gulf of St. Lawrence, Maritime Provinces, and New England States.

462. **Myoxocephalus polyacanthocephalus** Pallas.
Great Sculpin.
Marine.
British Columbia and Puget Sound; extending northward to Alaska, Bering Sea, and Kamchatka.

463. **Dasycottus setiger** Bean.
Marine.
North Pacific: specimens obtained at various stations of the United States s.s. *Albatross* off Sitkalidak Island, and at localities north and south of the Alaskan Peninsula, and north of Unalaska Island; also recorded from Puget Sound; given here as it ought in all probability to occur in British Columbian waters.

464. **Oncocottus hexacornis**† Richardson.
Long-horned Sculpin.
Marine, lacustrine, and at mouths of rivers.
Circumpolar; recorded from mouth of Tree River near Copper Mine River (Richardson, 1836, as *Cottus hexacornis*—the type); Hudson Bay region and coast of Labrador; New Brunswick (Cox, 1895, as *Cottus labradoricus*); Greenland; Point Barrow, Port Clarence, Herschel Island, and Bering Straits; Siberia, White Sea, Nova Zembla, Baltic Sea, England, and dwarfed in Ladoga and Onega Lakes.‡

465. **Triglopsis thompsoni** Girard.
Lake Sculpin; Deep-water Blop.
Lacustrine, and in tide pools.
Recorded from tide pools 75 miles north of York Factory, Hudson Bay region (Preble, 1900); previously known only from Lakes Ontario and Michigan.

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*"According to Lutken the Greenland Sculpin (*grœnlandicus*) is not separated from *scorpius* by any character trenchant or constant." "Lilljeborg regards the 2 as identical a view not unlikely correct." Jordan and Evermann. "This form is considered in current ichthyological literature as a sub-species of *M. scorpius*. The differences are few but well marked and seem to be constant in such specimens as the writer has been able to examine." Kendall.

†*O. hexacornis*, *O. quadricornis*, and *O. labradoricus* provisionally treated here as one and the same species.

‡"These dwarf specimens may not be separable from *Triglopsis* which genus is evidently derived from the lacustrine degradation of *Oncocottus*." Jordan and Evermann.

466. Triglopsis ontariensis Jordan and Thompson

Lacustrine

New species "founded on one specimen from off Toronto, Ontario" (Lambe, 1912)

467. Gymnocanthus pistilliger Pallas

Marine

Recorded from Hudson Bay,* and "collected at Niantilik Harbor, Cumberland Gulf" † coasts of Alaska, westward through Bering Sea, to Petropaulski

468. Gymnocanthus tricuspis Reinhardt

Marine.

Arctic Seas, extending southward on the American side to coast of Labrador, and on the European side to coast of Norway

469. Oligocottus borealis Jordan and Snyder.

Marine

British Columbia and Puget Sound: ranging on the Pacific coast from Prince William Sound to Oregon

470. Blennicottus acuticeps Gilbert.

Marine.

Ranges from Vancouver Island to Prince William Sound, also from tide pools at Unalaska 4 type specimens

471. Blennicottus globiceps cryosus Jordan and Snyder.

Globe-headed Sculp

Marine.

British Columbia and Puget Sound, ranging northward to Kadiak

472. Blepsias cirrhosus Pallas

Prickled Sailor-fish.

Marine: in shallow water

British Columbia and Puget Sound: ranging from coast of California northward to Alaska hence westward to Kamchatka

473. Nautichthys oculofasciatus Girard.

Banded Sailor-fish.

Marine.

British Columbia and Puget Sound: ranging from coast of California northward to Kadiak Island.

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*"This fish has been reported from the Atlantic side of North America, but it is probably a different species, as the mushroom-like filaments are not mentioned in their description. Sir John Richardson took a single specimen, a female 5 or 6 inches long, at Hudson Bay, which appears to be the same as those from Bering Sea." Scofield quoted after Jordan and Evermann.

†A specimen from this locality is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America' vol. IV, pl. CCCI

PLATE XIII.

150 Platichthys stellatus (Starry Flounder)
(Specimen with the eyes on the right side of the head, the eyes of this species being often on the left side)

151 152 Polistotrema stouti (California Hagfish)

153 Lepidopsetta bilineata (Two-lined Flounder)

154–155 Hydrolagus colliei (Ratfish)

156 157 Palometa simillimus (California Pompano)

158 159 Taeniotoca lateralis (Striped Surf-fish)

160 161 Damalichthys argyrosomus (Porgee)

162. Sebastodes paucispinis (Jackfish)

163 164 Sebastodes chrysomelas (Black and Yellow Rockfish)

165–166 Sebastodes nigrocinctus (Black-banded Rockfish)

167 168 Anoplopoma fimbria (Coalfish or Skil)

150 Plan [illegible]

151, 152 Polysiphonia stoneii (California Hair)

153 Lophosiphonia filiformis (Two-branch)

154, 155 [illegible]

156, 157 Pikeodora simplicissima (Cottonwood Pompon)

158, 159 [illegible]

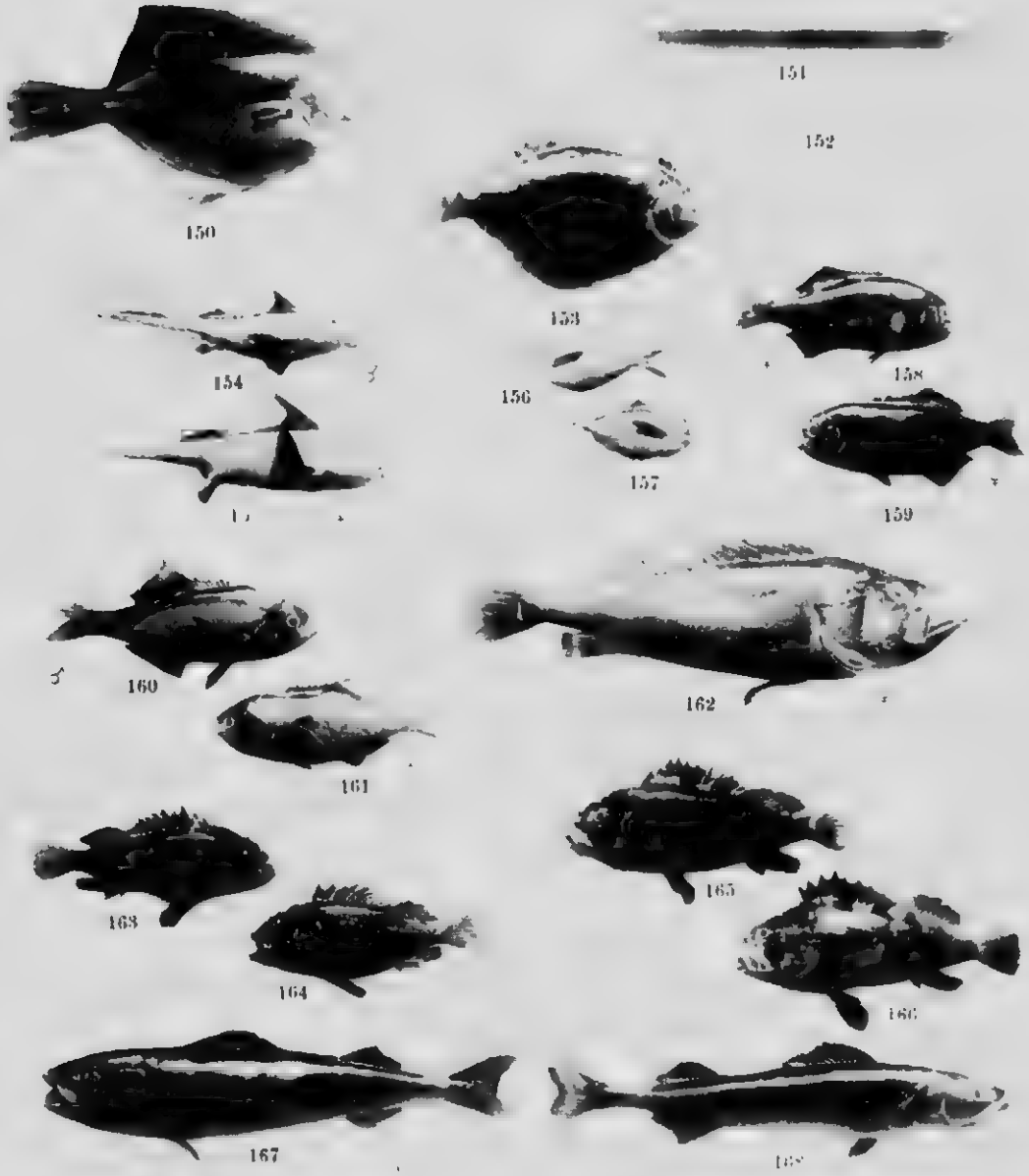
160, 161 [illegible]

162 [illegible]

163, 164 Sonderophycus [illegible] (Yellow Beard)

165, 166 Sonderophycus [illegible] (Black Beard)

167, 168 [illegible]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474. Hemitripterus americanus Gmelin. (Plate XII, figures 142 and 143).
Sea Raven.
Marine.
Atlantic coast of North America: Maritime Provinces, Gaspe Bay, Gulf of St. Lawrence, Labrador, and Newfoundland: extending southward to the coast of the State of New York.

475. Hemitripterus cavifrons Lockington.
Sea Raven.
Marine.
Ranges from British Columbia northward to coast of Alaska.

476. Synchirus gilli Bean.
Marine.
Barclay Sound, west coast of Vancouver Island.

477. Ascelichthys rhodorus Jordan and Gilbert.
Marine, abounding in rocky pools.
British Columbia: very abundant at the entrance to the Straits of Juan de Fuca: ranges on the Pacific coast from Mendocino to Alaska.

478. Psychrolutes paradoxus Gunther.
Spineless Sculpin.
Marine.
British Columbia the type from Gulf of Georgia (Günther, 1861): ranges from Puget Sound northward to coast of Alaska, including the Alaskan Peninsula; "thence westward through Unimak Pass, along the northern shore of Unalaska Island to the Kuril Islands, and the Pribilof Islands and in Bristol Bay" (Jordan and Evermann).

479. Gilbertidia sigolutes Jordan and Starks.
Marine.
British Columbia and Puget Sound.

480. Rhamphocottus richardsoni Gunther.
Richardson's Sculpin.
Marine.
British Columbia and Puget Sound: ranges from coast of California to Alaska.

481. Hypsagonus quadricornis Cuvier and Valenciennes.
Marine.
British Columbia: ranges from Puget Sound northward to Alaska, Bering Sea, and Kamchatka.

482. Pallasina barbata Steindachner.
Marine.
British Columbia: extends from the Arctic Ocean through the Bering Sea and to the coast of Alaska southward to Oregon, and on the Asiatic side to Japan.

483. Pallasina aix Starks.
Marine.
Ranges from British Columbia and Puget Sound to the Aleutian Islands.

484. Leptagonus decagonus Bloch and Schneider.
Marine: in deep water.
Arctic Ocean, extending southward to coasts of Newfoundland and Norway.

485. Podothecus acipenserinus Tilesius
Common Alligator-fish.
Marine.
British Columbia and Puget Sound, extending northward to Alaska, hence, including the Aleutian Islands, westward to Kamchatka.

486. Agonus cataphractus Linnæus.
Sea Poacher: Pogge.
Marine.
Arctic Ocean: Davis Straits, at least on the western coast of Greenland: seas of northern Europe; also recorded from Great Britain, and from the coast of France.

487. Averruncus emmelane Jordan and Starks.
Dark-coloured Alligator-fish.
Marine.
Known from British Columbia and Puget Sound.

488. Xystes axinophrys Jordan and Starks.
Marine.
Known from British Columbia and Puget Sound.

489. Bathyagonus nigripinnis Gilbert.
Bathybial.
British Columbia: ranges from the coast of the State of Washington northward to the Aleutian Islands and Bering Sea.

490. Xenochirus pentacanthus Gilbert.
Marine: in deep water.
British Columbia: ranges from coast of California northward to Bering Sea.

491. Odontopyxis trispinosus Lockington.
Marine: in deep water.
British Columbia and Puget Sound southward to Santa Barbara, California: recorded from Alaska (Lockington, 1879).

492. Bothragonus swanii Steindachner.
Marine.
British Columbia and Puget Sound

493. Aspidophoroides olriki Lutken.
Marine.
Arctic Ocean: Davis Straits, at least on the Greenland side: also recorded from the Kara Sea.*

*"The Dutch expedition took 15 specimens of this form in Barents Bay [Kara Sea] and probably confused it with *A. monopterygius*." Jordan and Evermann.

494. Aspidophoroides monopterygius Bloch.

Sea Poacher: Alligator Fish.

Marine.

Maritime Provinces, Gulf of St. Lawrence, and coast of Labrador: presumably Hudson Bay, and to the Arctic regions.

495. Aspidophoroides inermis Gunther.

Marine.

Ranges from Vancouver Island northward to coast of Alaska, including Bristol Bay and the eastern Aleutian Islands.

496. Cyclopterus lumpus Linnæus.

Lump-fish: Lump-sucker.

Marine: abounding on rocky shores.

Both coasts of north Atlantic Ocean: on the American side ranging from Davis Straits, and embracing Labrador, Newfoundland, Gulf of St. Lawrence, Gaspe Bay, Maritime Provinces, and New England States, southward to Cape Cod: on the European side occurs at the British Islands, including the Orkney Islands and "all around the Irish coasts" (Yarrell, 1859); and coasts of Scandinavia and Baltic Sea southward to coast of France.

497. Eumicrotremus spinosus Muller.

Marine.

North Atlantic and Arctic Ocean: coast of Labrador: recorded from Davis Straits (Dresel a specimen from the stomach of a halibut): "trawled off Halifax Harbour by the 'Speedwell' Expedition, August, 1877" (Jones, 1879, as *Cyclopterus spinosus*); extends southward to Maine and Denmark.

498. Eumicrotremus orbis Gunther.

Marine.

North Pacific Ocean: ranges from Vancouver Island to Bering Sea.

499. Neoliparis atlanticus Jordan and Evermann.

Marine: among rocky shores.

The type from Godbout, Province of Quebec (in the United States National Museum at Washington): ranges from Newfoundland, and perhaps Labrador (Gill, 1872, but queried by Kendall), southward to Cape Cod: "taken off Halifax Harbour by the 'Speedwell' Expedition, August, 1877" (Jones, 1879, as *Liparis montagui*),* and recorded as occurring in Gaspe Bay (Stafford, 1905-1906, also as *L. montagui*).

500. Neoliparis floræ Jordan and Starks.

Marine.

British Columbia and Puget Sound southward to coast of California

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**Neoliparis atlanticus* has repeatedly been confounded with the European species *N.* (*Liparis*) *montagui*. "The published figures of *N. montagui* show a deeper fish with larger head and with the spinous dorsal very low, and scarcely distinct from the soft rays." Jordan and Evermann.

501. Neoliparis greeni Jordan and Starks.
Green's Sucker.
Marine.
Only the type* apparently known: from Esquimalt Harbour, near Victoria, Vancouver Island (in Leland Stanford Junior University Museum).

502. Liparis liparis Linnæus.
Sea Snail.
Marine.
Both shores of North Atlantic, on the American side ranges from Davis Straits to Connecticut, and recorded from Labrador; abundant in northern Europe, ranging from Spitzbergen and Nova Zembla southward to France; "more common in the northern parts of the British Islands than in the southern"† (Yarrell, 1859).

503. Liparis cyclopus Günther.
Marine.
Recorded from Esquimalt Harbour, Vancouver Island (Günther, 1861); probably ranges from Puget Sound to Bering Sea.

504. Liparis fucensis Gilbert.
Marine.
Type specimens from Port Angeles, Straits of Juan de Fuca, State of Washington (Gilbert, 1893); given here as likely to occur in British Columbian waters; thought to have been found near San Francisco (Garman, 1892, as *L. callidon*, and was if such is referable to the same species).‡

505. Liparis tunicatus Reinhardt.
Marine.
Recorded from coasts of Labrador and Greenland.

506. Liparis herschelinus Scofield.
Marine.
Arctic Ocean, having been recorded from Herschel Island, Beauford Sea, and should occur, presumably, elsewhere in the North West Passage.

507. Liparis dennyi Jordan and Starks.
Marine.
Ranges from Puget Sound northward, and recorded from near Unalaska; evidently occurs in British Columbian waters.

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*This specimen is figured, in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CCCXVI.

†"This species is found on the Berwickshire coast, and Dr. Parnell has obtained specimens in the Frith of Forth. Mr. Low says, 'The Sea Snail is found under stones at many places in Orkney; but in no place more frequently than that at the point of the Ness of Stromness, where they may be picked up by dozens.'" Yarrell.

‡"Mr. Garman identifies this species with the *callyodon* of Pallas, but according to Pallas his species had the gill opening reduced to a lunate spiracle which is not the case in *Liparis fucensis*." Jordan and Evermann.

508. Liparis pulchellus Ayres.
Stone Sucker.
Marine.
British Columbia: ranges from coast of California to Alaska and Bering Sea.

509. Bathyphasma ovigerum Gilbert.
Bathybial.
Off Queen Charlotte Islands, British Columbia—known apparently only from the type,* obtained at 1,588 fathoms.

510. Careproctus ranula Goode and Bean.
Marine.
Off Chebucto Head, Halifax Harbour, Nova Scotia—only specimen apparently known (if distinct as a species from *C. reinhardti*)† obtained by the 'Speedwell' Expedition in 52 fathoms (Jones, 1879, as *Liparis ranula*).

511. Paraliparis cephalus Gilbert.
Bathybial.
British Columbia: ranges from coast of California to Alaska: recorded also from north of Unalaska.

512. Paraliparis ulochir Gilbert.
Bathybial.
Recorded from Gulf of California and Bering Sea: given here owing to its occurrence north and south of British Columbia.

513. Prionotus carolinus Linnæus.
Common Gurnard.
Marine.
Ranges from Maine to South Carolina, perhaps from Maritime Provinces.

514. Cephalacanthus volitans Linnæus.
Flying Robin: Flying Gurnard.
Marine: rises out of the water, like the flying fishes, and moves in the air.
Occasional off the coast of the southern part of the Bay of Fundy: "found along our entire coast [United States] south of Cape Cod, and in the waters of Brazil; also in the Mediterranean and in the neighbouring parts of the eastern Atlantic" (Goode, 1888); and recorded from various localities in the West Indies, including Porto Rico on the authority of Poey and Stahl (Evermann and Marsh, 1899).

515. Porichthys notatus Girard.
Midshipman.
Marine: lives under stones.
British Columbia‡ and Puget Sound, ranging southward to Lower California.

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*This specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CCCXVIII.

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†"Garman refers this species to the synonymy of *Careproctus reinhardti* [a fish known from Greenland and neighbouring islands] which may be correct." Jordan and Evermann.

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‡A specimen in the Provincial Museum, Victoria, given in the catalogue as *P. porosissimus* would seem to belong to this species—the recorded range of *P. porosissimus* being from South Carolina to Texas and Argentina.

516. Caularchus mæandricus Girard
Suck-fish: Cling-fish
Marine: in rocky pools
British Columbia southward to Point Concepcion.

517. Heterostichus rostratus Girard.
Kelpfish.
Marine: abundant among kelp
Reputed range coast of California: included here on the strength of a female mounted specimen* obtained in British Columbia by Mr. S. F. Denton, taxidermist, which seems to answer to this species.

518. Bryostemma polyactocephalum Pallas
Tufted Blenny.
Marine.
British Columbia and Puget Sound, ranging northward to Bering Sea, hence westward to Kamchatka, and, if the same, to the island of Hokkaido, Japan (Herzenstein, 1890, as *Chirolophus japonicus*).

519. Bryostemma nugator Jordan and Williams.
Marine.
British Columbia and Puget Sound

520. Apodichthys flavidus Girard.
Yellow Blenny.
Marine: "usually found below low-tide mark."
British Columbia and Puget Sound southward to Santa Barbara Islands.

521. Xererpes fucorum Jordan and Gilbert.
Marine: in rocky pools, and amongst sea weeds often out of the water.
British Columbia and Puget Sound southward to coast of California.

522. Pholis gunnellus Linnæus.
Gunnel: Butterfish.
Marine: abounding on rocky shores among sea-weeds.
Both sides of north Atlantic: ranging on the American side from Labrador, and embracing the Gulf of St. Lawrence, Gaspe Bay, doubtless Newfoundland, and Maritime Provinces, southward to Wood's Hole; and on the European side from the coast of Norway to France: occurs in Great Britain from the southern counties of England, including Cornwall, along the east coast, including Berwick Bay and the Frith of Forth, northward to the Orkney and Shetland Islands.

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*Certain characters of this specimen are as follows.—Length with mouth protracted and open 18 inches: a single row of conical teeth with a series of villiform teeth behind them in each jaw: lateral line straight from top of operculum to beyond pectoral fin, thence straight to caudal fin: caudal fin furcate and separated from the dorsal and anal fins: dorsal fin terminating slightly in front of terminus of anal fin: first dorsal spine separated from the second—a rudimentary membrane near their base alone connecting them: soft portion of dorsal short and somewhat higher than spinous portion: a translucent spot behind the third spine, and numerous other spines in both dorsal and anal fins each with a translucent spot behind it. pectoral fin placed high, but distance from dorsal outline greater than from ventral outline: colour brownish and mottled with whitish markings

523. Pholis fasciatus Bloch and Schneider.
Marine.
Ranges from the coast of Greenland westward to the Kuril Islands, embracing the Arctic Ocean and Bering Sea: its range indicating that it undoubtedly occurs in the waters of the North West Passage, and should therefore be considered indigenous to the Dominion.

524. Pholis ornatus Girard.
Ornamented Gunnel.
Marine: lives in shallow water.
British Columbia: ranging from coast of California northward to Bering Sea, hence westward to Kamchatka.

525. Anoplarchus atropurpureus Kittlitz.
Marine.
British Columbia; ranging from coast of California to coast of Alaska and Bering Sea.

526. Xiphistes chirus Jordan and Gilbert.
Marine.
British Columbia: ranges from coast of California northward to coast of Alaska.

527. Xiphidion mucosum Girard.
Slimy Eel Pout.
Marine: abounding among rocks and sea-weeds.
British Columbia: ranging from coast of California to coast of Alaska.

528. Xiphidion rupestre Jordan and Gilbert.
Rock Eel Pout.
Marine: living among rocks and sea-weeds.
Ranges from British Columbia to coast of California.

529. Leptoclinus maculatus Fries.
Langbarn.
Marine.
Arctic Ocean: occurs in Bering Sea and recorded from Unimak Pass and Bristol Bay: also occurs from Spitzbergen southward to the coasts of Norway and Sweden: possibly circumpolar, and if so should occur in the waters of the North West Passage: recorded from the "fishing banks off the coast" of Nova Scotia (Jones, 1879, as *L. aculeatus*).

530. Lumpenus medius Reinhardt.
Marine.
Probably circumpolar: ranging at least from Spitzbergen and the coast of Norway westward, and including Greenland, Bering Sea, and Kamchatka: and should therefore occur in the waters of the North West Passage.

531. Lumpenus anguillaris Pallas.
Snake Blenny.
Marine.
British Columbia: ranges from coast of California to Alaska, including the Aleutian Islands, and thence to Kamchatka.

532. Lumpenus fabricii Cuvier and Valenciennes.
Marine.
Recorded from Gulf of St. Lawrence, Labrador (Schmitt, 1904), and Hudson Bay region (Preble, 1908); also from Greenland, Bering Sea, and Spitzbergen.

533. Lumpenus lampetræformis Walbaum.
Serpent Blenny.
Marine.
Both sides of north Atlantic and in the Arctic Ocean; recorded from Labrador, and extending southward to Cape Cod "if *L. serpentinus* is the same" (Jordan and Evermann); also recorded from Spitzbergen, Norway and Sweden, and Iceland under several synonyms.

534. Stichæus punctatus Fabricius.
Marine.
Arctic Seas; ranging from Greenland westward to Siberia; on the Atlantic side extending southward to Hudson Bay, Labrador, Newfoundland, and Nova Scotia; and on the Pacific side to Bristol Bay and Prince of Wales Island, Alaska, close to the British Columbian border; in all probability extends southward to waters of British Columbia.

535. Ulvaria subbifurcata Storer.
Radiated Shanny.
Marine.
North Atlantic Ocean; Maritime Provinces, extending southward to Cape Cod.

536. Eumesogrammus præcisus Kröyer.
Marine.
Coasts of Greenland; "a specimen was forwarded by Mr. Whiteaves from the vicinity of Anticosti to the Smithsonian Institution" (Jones, 1879, as *E. unimaculatus*).

537. Delolepis virgatus Bean.
Wrymouth.
Marine.
British Columbia and Puget Sound extending northward to southern Alaska.

538. Cryptacanthodes maculatus Storer.
Wrymouth; Ghost-fish.*
Marine.
Maritime Provinces and Gaspe Bay; ranging from coast of Labrador southward to Long Island Sound.

539. Anarhichas latifrons Steenstrup and Hallgrimsson.
Wolf-fish.
Marine.
Ranges from beyond the Arctic Circle southward on both sides of the Atlantic; on the American side to Banquereau; recorded from Canso,† Nova Scotia, and from the "fishing banks of the coast" of that Province (Jones, 1879).

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*"The ghost-fish form (*inornatus*) occasionally seen, is doubtless an albino." Jordan and Evermann.

†"One very large specimen of the wolf-fish was taken on the trawl of the steamer *Active* in about 50 fathoms. I learned that not more than one or two specimens are secured in a season, so that it is not a common fish." Cornish.

540. Anarhichas minor Olafsen.
Wolf-fish.
Marine.
Ranges from beyond the Arctic Circle southward on both sides of the Atlantic: occasionally brought to Canso, Nova Scotia, by the fishermen:* "fishing banks off the coast" of Nova Scotia (Jones, 1879): occurs on the New England coast, Iceland, and Norway.

541. Anarhichas lupus Linnæus. (Plate XII, figures 144 and 145).
Wolf-fish.
Marine.
Both sides of north Atlantic southward to Cape Cod and France. Maritime Provinces, Gulf of St. Lawrence, Gaspe Bay, Labrador, and without doubt Newfoundland: "off the coasts of Norfolk and Yorkshire, in Berwick Bay, in the Frith of Forth, and among the Orkneys, occasionally also on the eastern coast of Ireland, and it is well-known on the northern shores of Europe, and in Greenland and Iceland" (Yarrell, 1859).

542. Anarhichas lepturus Bean.
Alaska Wolf-fish.
Marine.
Ranges from Vancouver Island northward to coasts of Alaska, including the Aleutian Islands, thence westward, perhaps, to Kamchatka (Pallas, 1811, as *Anarrhichas orientalis*).

543. Anarrhichthys ocellatus Ayres.
Wolf Eel.
Marine.
British Columbia and Puget Sound southward to coast of California.

544. Scytalina cerdale Jordan and Gilbert.
Marine: burrowing among rocks or living in gravel or wet-shingle between or near tide marks.
Recorded from Waadda Island, near Cape Flattery, State of Washington, at the entrance to the Straits of Juan de Fuca: given here as likely to occur on the British Columbian side of the Straits.

545. Zoarces anguillaris Peck. (Plate XII, figures 146 and 147).
Eel Pout.
Marine.
Ranges from the coast of Labrador, embracing the Gulf of St. Lawrence and Maritime Provinces, and doubtless Newfoundland, southward to the coast Delaware.

546. Lycodopsis pacificus Collett.
Pacific Eel Pout.
Marine.
British Columbia and Puget Sound southward to coast of California.

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* Occasional specimens differing from the two foregoing [*A. latifrons* and *A. lupus*] are occasionally brought in by the fishermen, and appear to belong to this species. Like *A. latifrons* this is usually regarded as a purely Arctic wolf-fish." Cornish.

547. Lycodes vahlii Reinhardt
Marine.
"Fishing banks off the coast" of Nova Scotia (Jones, 1879); coast of Greenland, and presumably northern or Arctic seas of eastern North America.

548. Lycodes zoarchus Goode and Bean.
Bathybial.
Known apparently only from off the coast of Nova Scotia,* having been found at 130 and 190 fathoms.

549. Lycodes reticulatus Reinhardt.
Marine.
Recorded from Banquereau; both sides of north Atlantic; on the American side ranging from Greenland to Narragansett Bay, abundant in northern Europe.

550. Lycodes frigidus Collett.
Bathybial.
"North Atlantic and Arctic Ocean, from Spitzbergen south to the New England coast" (Jordan and Evermann); probably occurs in waters of British North America.

551. Lycodes terræ-novæ Collett.
Bathybial.
Only the type apparently known from Banks of Newfoundland; the specimen in the collection of the Prince of Monaco.

552. Lycodalepis mucosus Richardson.
Marine.
Arctic America; Cumberland Gulf and Northumberland Sound.

553. Lycenchelys verrillii Goode and Bean.
Marine.
"Fishing banks off the coast" of Nova Scotia (Jones, 1879, as *Lycodes verrillii*); "an old male,† collected by the U.S. Fish Commission, 27 miles southwest of Chebucto, Nova Scotia" (specimen in U.S. National Museum), off the coast of New England.

554. Lycenchelys paxillus Goode and Bean.
Bathybial.
Recorded from between La Have and Sable Island Banks, from off Newfoundland, and from Gulf Stream.

555. Bothrocara mollis Bean.
Bathybial.
The type from off Queen Charlotte Islands; also recorded from southern California, off Bogoslof Island, and from near Unalaska.

*The type specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CCCXLIX.

†This specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CCCLI.

556. Gymnelis viridis Fabricius.

Marine.

Arctic regions; ranging from Greenland westward to Behring Sea; extending on the Atlantic side of North America southward to Nova Scotia, and on the Pacific side to Unalaska and Bristol Bay.

557. Gymnelis stigma Lay and Bennett.

Marine.

Arctic regions, ranging from Greenland to Behring Sea. Northumberland Sound (Richardson, 1854, as *G. viridis* variety [illegible]); [illegible] Sound (Lay and Bennett 1839, as *Ophidium stigma*).

558. Lycocara parrii* Ross.

Marine.

Recorded from Baffin's Bay (Ross, 1820, as *Ophidium* [illegible]).

559. Derepodichthys alepidotus Gilbert.

Bathybial.

Only the type apparently known from off Queen Charlotte Islands.

560. Trachypterus rex-salmonorum Jordan and Gilbert.

King-of-the-Salmon.

Marine.

Recorded from Straits of Juan de Fuca, and from off the coast of California.

561. Lophius piscatorius Linnæus. (Plate XIV, figure 181).

Angler; Fishing-frog; Monkfish.

Marine.

Both sides of north Atlantic; Maritime Provinces and Gaspe Bay; extending southward on the American side to the Barbado Islands; in the eastern hemisphere ranges from Norway to the Cape of Good Hope; "not rare on any part of the coasts of Great Britain and Ireland, and is particularly common in the Solent and in the harbours of Portsmouth and Southampton" (Yarrell, 1859).

562. Ceratias holbolli Kröyer.

Sea Devil.

Bathybial.

Recorded from Nova Scotia and Greenland.

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*"Very imperfectly known, no specimens having been obtained by any recent collector." Jordan and Evermann

563. Balistes carolinensis Gmelin.

Trigger-fish.

Marine.

Recorded from Banquereau,* some 50 miles southeast of Canso, Nova Scotia: "a specimen taken at St. Margaret's Bay is in the Halifax Museum"† (Jones, 1879, as *B. capriscus*): "a fine adult specimen taken with a spear on 25th August, near shore, Halifax harbour . Dartmouth, " (Piers, 1910); "tropical parts of the Atlantic; occasional northward in the Gulf Stream; very common on our coast [United States], and in the Mediterranean, rarely north to England" (Jordan and Evermann); a specimen was obtained by Dr. Melville in the Bay of Galway in 1853, and is recorded in Thompson's Natural History of Ireland (Yarrell, 1859).

564. Monacanthus hispidus Linnæus.

File-fish.

Marine.

"Occasional specimens are taken in shore waters [of Nova Scotia] the Rev. John Ambrose kindly forwarded one to the author about twelve years ago which was secured at St. Margaret's Bay" (Jones, 1879, as *Stephanolepis setifer*); ordinarily ranges from the coast of Brazil and the West Indies, being abundant among the Florida Keys northward to Cape Cod; and also occurs at Madeira and the Canary Islands.

565. Chilomycterus schœpfi Walbaum.

Common Burrfish.

Marine

Specimen off Sambro near Halifax "in the summer of about 1896" (Piers): "Cape Cod to Florida; very abundant southward in shallow water; especially numerous on the coast of the Carolinas and Florida" (Jordan and Evermann).

566. Mola mola Linnæus.

Sun-fish: Head-fish.

Pelagic.

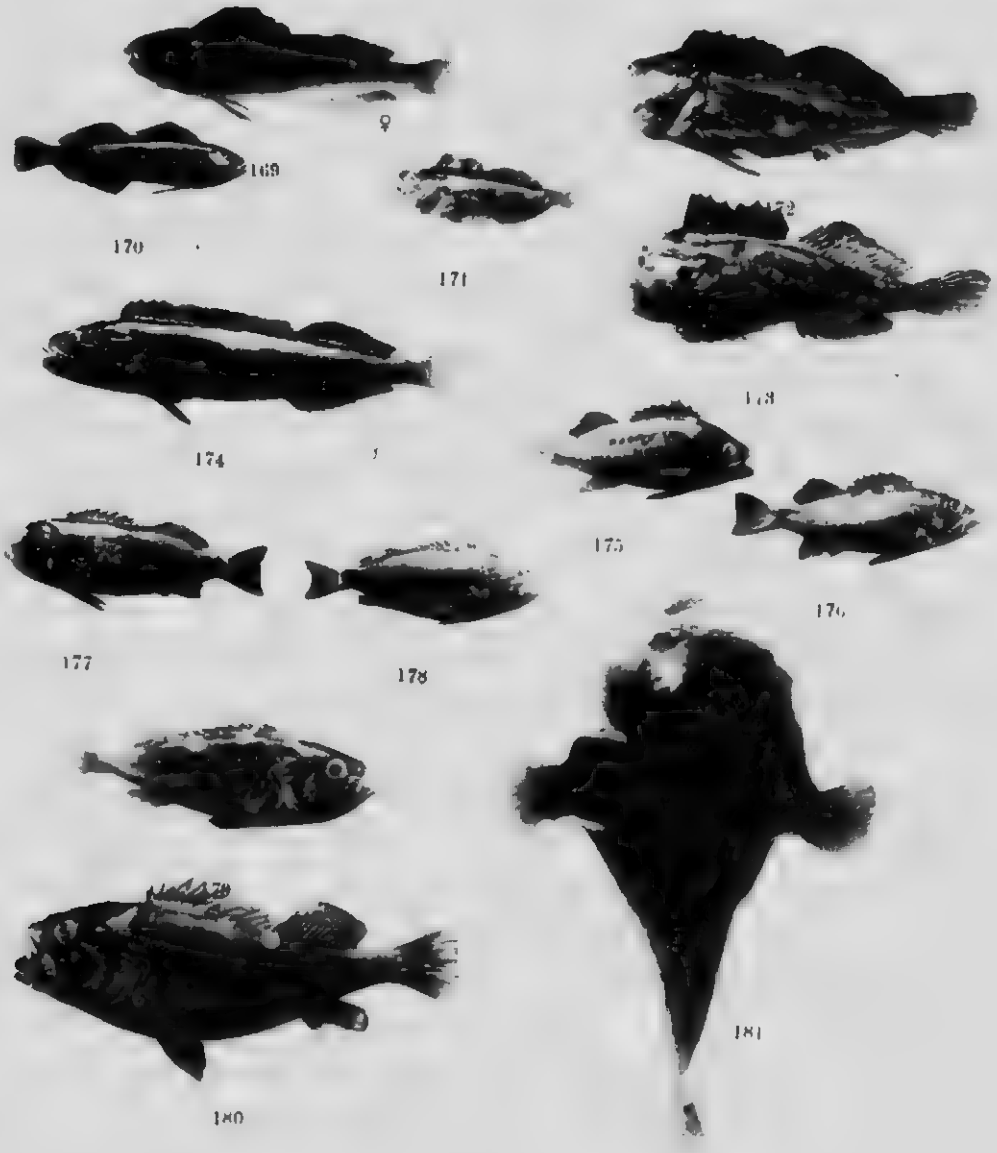
Temperate and tropical seas recorded from coast of Labrador (Schmitt, 1904); occasional on the coasts of the Maritime Provinces; "not uncommon at Canso and out on the Banks" (Cornish, 1901-1902) "a specimen five feet six inches in length taken in Halifax Harbour, October, 1873" (Jones, 1879, as *M. rotunda*) a specimen captured "about ten miles off Devil's Island, at the mouth of Halifax Harbour" 18th July, 1894, and another seen in Bedford Basin "about half a mile from shore" 14th August, 1895 (Piers, 1897); recorded from Gaspe Bay (Stafford, 1905-1906); "common northward to England, Cape Cod, and San Francisco" (Jordan and Evermann); mentioned by Günther (1880) and by Yarrell (1859 each as *Orthagoriscus mola*) as occurring also on the coast of Ireland, and by Yarrell in Scotland, including the Frith of Forth, and at the Channel Islands; occurs at the West Indies, and in the Mediterranean and Adriatic Sea.

*"One specimen of this remarkable File-fish was brought in by the deep-sea fishermen, who stated that it was 'gaffed' on Banquereau Bank, about fifty miles southeast of Canso. It was seen near the surface swimming around a floating buoy. Its captors had never seen one before, and it may be added that while the members of the family are abundant in tropical seas they become very scarce in high latitudes." Cornish

†So recorded, but Mr. Piers Curator of the Museum, says: "J. M. Jones in his 'List of the Fishes of Nova Scotia mention a specimen taken at St. Margaret's bay which was then in the Provincial Museum. I have not been able to recognize that specimen in our collections."

PLATE XIV.

169–170.	Hexagrammos decagrammus (Boregat)
171	Scorpænichthys marmoratus (Cabezon–juvenile)
172 173.	Scorpænichthys marmoratus (Cabezon)
174	Ophiodon elongatus (Cultus Cod)
175–176	Sebastodes mystinus (Black Rockfish or Priestfish)
177–178.	Sebastodes melanops (Black Sea Bass)
179 180	Sebastodes ruberrimus (Red Rockfish or Tambor)
181	Lophius piscatorius (Angler, Fishing Frog, or Monkfish)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ADDENDA

Just as the check-list is going to press specimens of the following species have been received from Mr. S. F. Denton, taxidermist, which he claims to have obtained in British Columbia and it is now too late to incorporate these species in their places in the list

12a. Scylliorhinus profundorum Goode and Bean
Roussette
Marine. Specimen from British Columbia as mentioned above "one specimen 85648 U.S.N.M. 20½ inches, obtained by the Fish Commission steamer *Albatross* at a depth of 816 fathoms, in latitude 39° 9′ N., longitude 72° 3′ 15″ W *Goode and Bean*" (Jordan and Evermann)

402a. Sebastodes goodei Eigenmann and Eigenmann
Marine. Specimen from British Columbia as mentioned above reputed range coast of California: "the species is now taken in abundance about the Coronados Islands Santa Catalina, and the Cortez Banks" (Jordan and Evermann)

411a. Sebastodes rastrelliger Jordan and Gilbert
Grass Rockfish
Marine. Two specimens from British Columbia as mentioned above reputed range coast of California

GLOSSARY OF TECHNICAL TERMS

Anadromous. Passing from the sea into fresh waters, as the salmon and certain other fishes do [illegible]

Bathybial. Living in depths; said of fishes and other creatures which inhabit the depths of the [illegible]

Bayous. Plural of bayou, a term employed to signify a channel proceeding from a lake or river. Bayou is from a French word, signifying a long narrow channel or gut. As applied to a channel proceeding from a river or lake it appears to be a United States term and is adopted here.

Brackish. Salt water diluted with fresh water, as at the mouths of rivers and estuaries.

Catadromous. Passing from fresh water into the sea, as the eel does to spawn.

Fluviatile. Pertaining to rivers; inhabiting rivers.

Lacustrine. Pertaining to lakes; inhabiting lakes.

Land-locked. Inclosed or encompassed by land, a term employed in regard to certain varieties of marine fishes which live in lakes having no direct communication with the sea; for instance, [illegible]

Marine. As a term employed in the check-list to denote such fishes as inhabit the sea without reference to the open sea or the depths.

Parasitic. Dependence of an animal or plant upon another animal or plant for subsistence, by [illegible]

Pelagic. Belonging to the ocean; inhabiting the open ocean.

[illegible]

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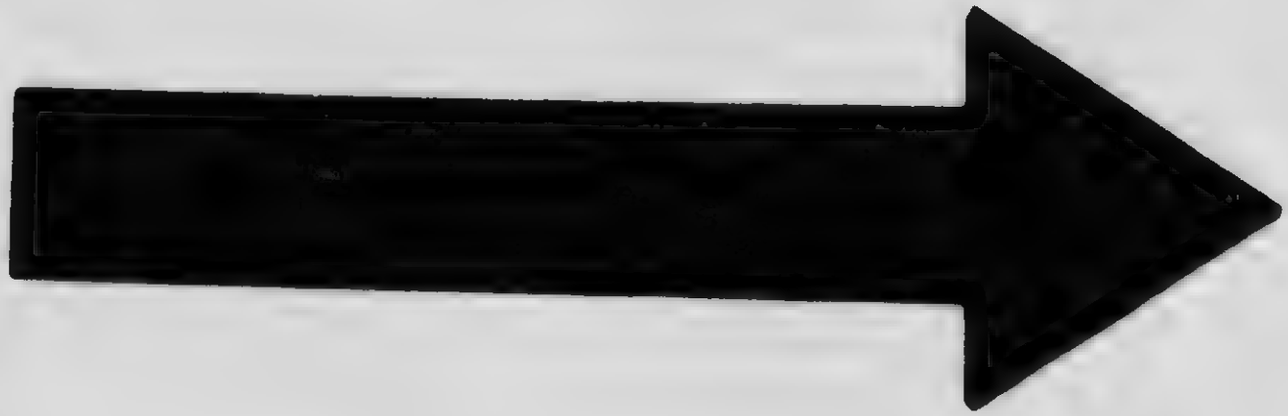

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